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CHARLES DARWIN, the great naturalist, died quite suddenly on Wednesday, the 19th inst., at his residence near Orpington.

THE American Society of Mechanical Engineers has had a very successful meeting at Philadelphia. We shall hereafter refer to the proceedings at greater length.

JUST as we are going to press, we have received the following dispatch from London: GOWEN'S financial policy unanimously accepted. His reception was warm and a vote of confidence was unanimously passed.

DURING the week, the meeting of the Academy of Sciences has been held at Washington, and many papers of great interest, not alone to scientists, but also having a direct bearing upon technical subjects, came up. Among others, we would note that of Prof. JOSEPH LECONTE on the formation of metalliferous veins at Sulphur Bank, California, and that of Prof. G. F. BARKER on the results of the incandescent lamp tests at the Paris Exhibition.

A CORRESPONDENT in London writes us that a contract has been made for the shipment of rails from London via New Orleans to St. Louis. The rate of freight delivered on line at St. Louis is said to be 21 shillings. This statement is one of much significance for the West, whose manufacturers have hitherto felt safe from the invasion of foreign iron and steel by reason of the fact that freights protected them.

FROM the report of the Committee of Mines and Mining of the House of Rrepresentatives, it is evident that those who have attempted to create a Bureau of Mines and Mining will not carry their point. Starting with the opinion that, practically, the Geological Survey is now a bureau of mines and mining, the committee asks that a resolution be passed to appropriate $50,000, to be expended under the direction of the Secretary of the Interior "for the examination of the geological structures, mineral resources, and products of the States and territories, and the procuring of statistics relating thereto, and making chemical analyses of the iron, coal, and oil found therein."

SINCE the United States trade-mark law has been rendered inoperative by a decision of the Supreme Court, the only means of seeking redress for counterfeiting trade-marks has been to go before State courts. State laws are very incomplete, and vary widely on this subject, and attention is now naturally directed to so modifying them as to protect the extensive interest involved. There is pending before the Judiciary Committee of the Senate of this State a bill proposing a change of the Penal Code, in sections 364 to 371, both inclusive, so as to make it a misdemeanor to counterfeit trade-marks, to affix to or to sell articles bearing a false trade-mark, or to possess dies, plates, or brands for the purpose of counterfeiting.

ONE of England's great engineers, metallurgists, and iron-masters, Mr. WILLIAM MENELAUS, died recently, at the age of sixty-four. After having been connected for seven years with the Abernant Iron-Works, he became general manager, in 1850, of one of Great Britain's largest iron-works, those of the Dowlais Company, in the conduct of the affairs of which he showed exceptional enterprise and good judgment. He was one of the first to experiment on a large scale with mechanical puddling, and he contributed largely to the practical success of the Bessemer process—a fact that was acknowledged by the presentation to him in 1879 of the Bessemer medal. Mr. MENELAUS was one of the founders and one of the most active members of the Iron and Steel Institute, which in a few years has attained the first rank among technical societies. Mr. MENELAUS possessed a happy faculty of readily appreciating improvements and of carrying them to a practically successful issue, and it is particularly in this direction that his achievements were greatest.

POWER drilling is rapidly becoming general in the mines of Lake Superior, and the results there attained clearly indicate the necessity of introducing rock-drills more extensively in our Western mines. There, gradually, one by one, the large producers are getting to a point where the directors and managers should carefully consider a matter to which they give too little attention. It is a discouraging state of affairs to any great industry when those in charge persistently refuse to make improvements because they fear the bad effect a suppression of dividends for a few months may have on the stock market. On Lake Superior, there is more than one instance where the saving of machine drilling over hand labor has paid for the entire plant in one or two years. With the aid of rock-drills, the cost of driving can be so much reduced in many cases that prospecting-work can be more extensively and more vigorously prosecuted. One great trouble is, that we possess so comparatively little accurate information on the actual cost of sinking and driving in various kinds of rock and in different districts. Of course, it is impossible to figure down to cents what the saving in a new field would be ; but quite generally engineers and managers are hardly in a position to make even approximate estimates, a fact which considerably weakens the force of any recommendations they may feel it their duty to make.

THE labor troubles throughout the country are beginning to assume a more serious aspect, as they are affecting almost every branch of industry, either directly or indirectly. In many trades, the employers have yielded, but probably in most cases under the mental reservation that, when current contracts cease, they will take a firm stand. Where adjustment has taken place, it seems merely to be of a temporary character ; and as soon as business slackens toward the summer months, there will probably be as many lock-outs as there are strikers now. This is particularly true of the building trades, upon the prosperity of which the metal industries of the country so largely depend. In the coal trade, the men are apparently reaching the conclusion that half a loaf is better than none at all, and there is now a much more general disposition to submit to inevitable reductions than there has been for some time. The Cumberland and a part of the Pittsburg fields are the only ones in which a suspension of work has actually taken place and some show of resistance is made, though the signs of weakness on the part of the men are growing more numerous, and it is expected that a resumption will soon be reached. Meanwhile, the indications of a gathering storm in the iron trade are becoming more numerous, and as the labor organization, which controls the workmen of our mills, foundries, and furnaces, is the most powerful and the most tyrannical, the struggle may easily prove a serious and pro tracted one.

THE long-continued deadlock between consumers and a part of the producers of copper has at length come to a close, and has turned out to be much more satisfactory to the latter than was quite generally expected. We have, from time to time, in our market reports, brought forward singly, as their importance seemed to warrant, the many points affecting the position of copper, and have frankly explained the causes which apparently were at work to shape the course of the market in a manner not as favorable to the industry as its well-wishers might desire to see. We may be allowed to summarize briefly. The enormous output of the Lake Superior region, and the exceptional quality of the metal produced, have for many years placed and still place the representatives of the mines of that region in a position to shape the market largely according to what they consider their best interests, and the preponderating influence of the Calumet & Hecla is such that it has almost undisturbed exercised that power alone. The smaller lake companies have not always acted in harmony with it, but generally find it necessary or expedient to co-operate with their great neighbor. The policy of the lake companies for years has been to contract with manufacturers for many months at a fixed price, the sale being made with the understanding that the value of the metal be maintained at that rate during the period covered by the transaction. Whenever the companies found that it was likely that the consumption could not cope with the quantity of copper made, the estimated surplus was disposed of abroad at whatever price it would fetch in the markets of the world. In some instances, this copper has returned to this market when values have been suddenly so much enhanced as to make such an operation profitable. Occasionally, too, a speculative element has proved a source of inconvenience and disturbance to those who were "fixing things." Of late, however, another element has exercised a very powerful influence, and the history of the last few months is significant in revealing which way it may affect events. We refer to the production of Western mines, and notably to those of Arizona and New Mexico. The matte and black copper from the smelting-works of the Rocky Mountains come to the East, where they are refined, excellent brands being produced. To introduce them, they are offered at lower figures than lake. In times when the producers of the latter insist on higher prices than consumers are willing to pay, the latter can freely draw upon this new source, and are thus placed in a much more independent position than they were before—a fact which they are fully aware of, as their long resistance during the last months shows. As yet, this matter has not assumed an importance which the lake companies have cause to feel alarmed at. But we believe that the time is rapidly approaching when all producers of copper will have to face the altered circumstances and decide whether matters can go on as at present. The manufacturers of copper are themselves largely interested in Western mining ventures, probably chiefly with the hope to reap the benefit of cheap raw material, if it is to be had by working Western mines. So long as the Lake Superior mines keep up the price of raw material, and thus hold the value of the manufactured articles, they will not complain, nor will the other Western mine owners feel dissatisfied. The question, is whether a much larger quantity of manufactured articles can be marketed at current prices. If not, producers have only two alternatives: to let the article be governed by the supply and demand, which must ultimately depend upon the consumption of manufactured goods, or to hold it up artificially as heretofore. To do this, it would be necessary to sell metal abroad at a sacrifice, relatively, though not absolutely. Will the lake companies be content to make this sacrifice alone, when its benefits extend to others also? The course of the trade during the summer can alone solve this question. It has increased very largely during the last two or three years, and may be further stimulated by present prices; but it may well be questioned whether it will keep up with our present rate of increase in the production. If it does not, we shall have to export a large quantity of copper, perhaps five or six thousand tons, at probably from $50 to $60 less than the price here. Even the Calumet & Hecla may be desirous of sharing such a load with others. It is a contingency which Western producers would do well to face. They may be called upon before the close of the present year, whether they wish to co-operate or not.

CHRYSOLITE.

The Chrysolite mine continues to make satisfactory progress, earning money for a dividend, though not at the tremendous rate which former *bonanzas* have permitted. That a lower layer of iron has been developed, is now apparently beyond doubt; and equally undoubted is the fact that good ore has been found in it. Whether this layer extends under the whole of the old workings, and whether it will prove, like the upper one, to contain large masses of rich ore, explorations only can determine. Among these explorations, the sinking of the Roberts shaft is one of the most important and promising, and, unfortunately, one of the most difficult also. The bottom of that shaft is now partly in dolomite sand, which shows several ounces of silver per ton wherever it is stained with iron. This material is like that which, elsewhere in the mine, has frequently been found to overlie richer ore: there is, therefore, some reason to hope that important developments will be made by sinking but a few feet farther. It is precisely this work of sinking a few feet farther which strains the mechanical resources of the plant to their utmost. The water in the Roberts shaft, aggravated by the season and by the cessation of pumping in neighboring mines, has proved almost too much for the present pumping machinery. Yet it scarcely seems advisable to make expensive changes in machinery, before developments have shown that it will be worth while to prepare for very extensive deep workings. The management is still continuing the attempt to make the present machinery do the work for a while longer.

We learn, with great regret, that Mr. C. M. ROLKER, the skillful and energetic general manager of the company, has been obliged, by the condition of his health, to tender his resignation. The trustees, loth to lose a manager who so thoroughly possessed their confidence, would have been glad to adopt any feasible alternative, rather than accept his resignation. But a full discussion of all the facts made it plain that the altitude and climate of Leadville, rather than the responsibility and labor of Mr. ROLKER'S position, had affected his health, and hence that a temporary leave of absence and rest (which was freely offered him, but which he conscientiously declined) would not be an adequate remedy. One of the effects of the Leadville climate upon certain constitutions is a tendency to vertigo; and it was not until Mr. ROLKER had received a sharp warning of this kind (becoming suddenly unconscious and falling in the mine, fortunately but a few feet and without serious injury) that he determined to leave. Since he is not one of those gentlemen who think they can manage a mine without going underground, there was nothing for him but to give up the responsibility when he could not go underground without perpetual risk of life.

Faithful to the interests of the company, he nevertheless remained at his post until a suitable successor could be found; and the trustees and stockholders are to be congratulated that they have been able to secure the services of Mr. R. NEILSON CLARK, a mining engineer and superintendent of unquestioned ability, experience, and trustworthy character. It is an incidental but not unimportant point that Mr. CLARK, having been professionally engaged in Colorado for a dozen years or more, is thoroughly acclimated to the high altitudes. We understand that he is now on his way to Leadville; that he will take charge of the mine May 1st; and that Mr. ROLKER will remain for some time, to give his successor the benefit of his own intimate knowledge of the company's affairs. Moreover, it is not improbable that in some way Mr. ROLKER will continue to advise the management here, particularly if, as we hear, he intends, for a time at least, to make his headquarters in New York. His friends need not be anxious on account of what we have said concerning his health. The symptoms to which we have referred are common enough ten thousand feet above tide; and sea-level is a sure cure. While we regret on Mr. ROLKER'S account, as well as on that of the company, that his work at Leadville is thus cut short, we are glad he has held out long enough to make a professional record of courage, fidelity, energy, and skill, justifying pride on his part and gratitude on the part of his employers.

STATISTICS OF THE PRODUCTION OF THE PRECIOUS METALS IN THE UNITED STATES.—IV.

From an average production of only three or four millions, Colorado has suddenly risen to the first rank as a producer of the precious metals among the States and territories for gold and silver combined; as for silver alone, it ranks first, while for gold it holds the fourth rank. In the relation of production to area, it holds the first rank, likewise, for gold and silver combined and for silver alone, and the third for gold alone. In the relation of production to population, however, it ranks only third for gold and silver together, second for silver alone, and sixth for gold alone. The total value of its product during the census year in gold and silver was, in round numbers, nineteen and a quarter million dollars, and if we add to this the value of lead and copper in crude metal produced, we have a total value of metallic product of twenty-two and three quarters million dollars.

The collection of statistics of the precious metals in this State presents certain peculiar difficulties. First, from the fact that there are so many small mines which keep no accurate record of their production; secondly, because a very large proportion of its ores, being essentially heterogeneous in composition, have to be smelted, and are thus more difficult to trace than milling ores. The smelting ores are sold, it is true, mostly to smelters within the State; but the same mine often sells to different and widely separated works, and the smelters themselves buy ores in small lots from many mines, of which no separate record is kept. Moreover, the check furnished in the more Western States over the total production by the express returns is here wanting, since, practically, the whole silver product is shipped East in lead bullion, of which the transportation companies keep no record. Nevertheless, owing to the almost uniform willingness which the more important mine-owners, samplers, and smelters have shown to afford the data which they possessed, it is believed that the totals attained represent a very close approximation to the actual product of the State, and that the figures given are, on the average, within five per cent of the true amount, although in districts as yet incompletely developed this percentage may be greater.

As it was found impossible to separate with any degree of approximation the amount of "bullion produced," which should be credited to individual districts in several counties, the division into districts has

COUNTY.	Total assay value of ore raised during census year.			Bullion produced from ore raised and treated during census year.			Ore raised but not treated.	Assay value of ore raised during census year and remaining on hand at close of year.		
	Gold.	Silver.	Total.	Gold.	Silver.	Total.		Gold.	Silver.	Total.
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Tons.	Dollars.	Dollars.	Dollars.
Boulder	457,612	389,195	846,807	304,461	353,851	658,312	310·0	29,416	27,759	57,175
Chaffee	20,155	168,032	188,187	*1,019	*7,510	*8,529	818·0	14,644	139,253	153,897
Clear Creek	376,041	1,954,547	2,330,588	*218,756	*1,674,013	*1,892,769	1,210·0	42,450	172,284	214,734
Custer	14,594	598,252	612,846	14,392	72,308	86,700	9,310·0	.....	409,009	409,009
Gilpin	2,012,134	674,727	2,686,861	*1,617,848	*323,321	*1,941,169	23·0	374	125	499
Gunnison	9,079	181,700	190,779	*4,554	25,221	29,775	.....	.....	.....	.....
Hinsdale	8,269	187,163	195,432	5,743	129,236	134,979	.....	.....	.....	.....
Huerfano	724	3,394	4,118	.....	315	315	29·5	610	2,860	3,470
Lake (c)	82,687	13,726,999	13,809,686	80,903	12,564,168	12,645,071	11,828·0	2,445	1,064,964	1,067,409
La Plata	120	2,961	3,081	103	2,712	2,815	.....	.....	.....	.....
Ouray	74,119	277,103	351,222	*16,630	*102,981	*119,611	479·0	30,121	112,603	142,724
Park	7,291	784,254	791,545	*951	*513,179	*514,130	.....	.....	.....	.....
Rio Grande	8,527	.....	8,527	5,385	.....	5,385	.....	.....	.....	.....
San Juan	1,995	330,785	332,780	*1,736	*141,141	*142,877	1,372·0	.....	146,046	146,046
Summit	18,088	416,170	434,258	*5,168	*354,145	*359,313	400·0	4,134	34,650	38,784
Scattered	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	3,091,435	19,695,282	22,786,717	2,277,649	16,264,101	18,541,750	25,779·5	124,194	2,109,553	2,233,747

* Estimated. (c) Including Leadville District.

COUNTY.	Gross tons.	Lead.		Copper.		Gold.		Silver.		Total.
		Tons.	Dollars.	Tons.	Dollars.	Ounces.	Dollars.	Ounces.	Dollars.	Dollars.
Arapahoe	1,225	.....	.....	980	392,000	.....	.....	.....	.....	392,000
Hinsdale	800	790·00	71,100	.....	.....	270·0	5,581	96,878	125,254	201,935
Jefferson	1,117	525·75	47,318	598	239,200	10,315·0	213,231	565,020	730,514	1,230,263
Lake	28,383	28,226·00	2,540,340	.....	.....	3,830·2	79,177	8,053,946	10,412,947	13,032,464
Ouray	90	89·00	8,010	.....	.....	.....	.....	24,103	31,163	39,173
Park	57	56·00	5,040	.....	.....	.....	.....	11,996	15,510	20,550
Pueblo	2,191	2,126·50	191,385	.....	.....	1,347·0	27,845	1,557,608	2,013,831	2,233,061
Summit	260	256·00	23,040	.....	.....	.....	.....	10,400	13,446	36,486
Total	34,123	32,069·25	2,886,233	1,578	631,200	15,762·2	325,834	10,319,951	13,342,665	17,185,932

Lead, $90 per ton. Copper, $400 per ton.

been abandoned in such instances. In the following tables, the amount and value of ore raised has been given to districts as far as was possible, the heading "Scattered" including, in general, mines from which no direct information was obtained, but which had sold ore to samplers or smelters. The sign of "estimated" (*) might be appended in many cases to amounts of bullion produced by counties, because these amounts were largely obtained by segregating returns of ore purchased by smelters, and apportioning to each county the corresponding proportion of bullion produced from that ore; thus, while the relative amounts may be considered estimates, the total footings of the columns are determined from comparatively accurate data.

We condense the following from the tables given:

COUNTY.	Ore raised during census year.	Average assay value per ton.			Ore raised and treated.	Average yield per ton.		
		Gold.	Silver.	Gold and silver.		Gold.	Silver.	Gold and silver.
	Tons.	Dollars	Dollars	Dollars	Tons.	Dollars	Dollars	Dollars
Boulder	7,868	58.17	49.46	107.63	7,558·0	40.28	46.82	87.10
Chaffee	979	20.58	171.64	192.22	161·0	6.33	46.65	52.98
Clear Creek	37,031	10.15	52.79	62.94	a35,821·0	6.11	46.73	52.84
Custer	16,094	.91	37.17	38.08	b6,784·0	2.12	10.66	12.78
Gilpin	123,668	16.27	5.46	21.73	123,645·0	13.08	2.61	15.69
Gunnison	252	36.02	721.03	757.06	252·0	18.11	100.00	118.11
Hinsdale	2,695	3.07	69.45	72.52	2,695·0	2.61	13.09	15.70
Huerfano	35	20.69	96.97	117.66	5·5	.....	57.27	57.27
Lake (c)	152,451	.54	90.04	90.58	140,623·0	.58	89.34	89.92
La Plata	12	10.00	246.75	256.75	12·0	8.58	226.00	234.58
Ouray	1,790	41.41	154.81	196.22	1,311·0	12.69	78.55	91.24
Park	5,364	1.36	146.21	147.57	5,364·0	.18	95.67	95.85
Rio Grande	550	15.50	.....	15.50	550·0	9.79	.....	9.79
San Juan	2,725	.73	121.39	122.12	1,353·0	1.29	104.31	105.60
Summit	4,846	3.73	85.88	89.61	4,446·0	1.16	79.66	80.82
Scattered	.....	.....	.....	.....	.....	.....	.....	.....
Total	356,360	8.68	55.26	63.94	330,580·5	6.89	49.20	56.09

a 14,384 tons lost by concentration.
b 4684 tons lost by concentration.
c Including Leadville District.

In Gilpin County, $236,190 of gold and $80,576 of silver; in Boulder County, $12,266 of silver; and in scattered districts, $84,314 of gold and $190,970 of silver—a total of $320,504 of gold and $283,812 of silver, were produced from ore previously raised.

Although copper and lead belong rather to the useful than to the precious metals, their importance among the mineral products of Colorado, and their intimate connection with the production of gold and silver, render their consideration here essential. In the following table, only the crude metal obtained from ores actually smelted within the State is given, no account being taken of the copper or lead contained in ores which were shipped outside of the State for treatment. This amount is, however, of comparatively little importance, forming probably not over five per cent of the total product. The lead product was all in the form of argentiferous lead bullion, which was shipped to various smelters in the East to be refined. The copper product was partly as matte, but largely in the form of copper oxide. Of the actual shipments of the latter, a portion was produced from ores raised in Montana; a proportionate amount of the total product has, however, been credited to that territory in its appropriate place.

In the subjoined table are shown the relative amounts of ore treated by mill process and by smelting, and their average yield per ton. Its principal value is to show the average character of ore in each county in reference to its adaptation to either process of reduction. It would have been extremely interesting, had the data been such as would yield accurate results, to give the assay value of the ore treated in each case, and thus compare the relative losses in each process; but the number of cases in which it has been necessary to estimate product from assay value, or *vice versa*, would seriously impair the value of such comparison.

SMELTING-WORKS.

COUNTY.	Ore raised and smelted.	Average yield per ton.			Bullion produced from ore smelted during census year.		
		Gold.	Silver.	Gold and silver.	Gold.	Silver.	Total.
	Tons.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
Boulder	3,412·0	68.52	47.10	115.62	233,794	160,717	394,511
Chaffee	161·0	*6.33	*46.65	*52.98	*1,019	*7,510	*8,529
Clear Creek (a)	9,701·0	11.93	116.26	128.19	*115,748	*1,127,854	*1,234,602
Custer (b)	982·0	14.24	64.65	78.89	13,978	63,490	77,468
Gilpin	10,218·0	48.36	28.26	76.62	494,088	288,711	782,799
Gunnison	252·0	18.11	100.00	118.11	*4,554	25,221	29,775
Hinsdale	2,695·0	2.61	13.09	15.70	5,743	129,236	134,979
Huerfano	5·5	.....	57.27	57.27	.....	315	315
Lake	140,623·0	.58	89.34	89.92	80,903	12,564,168	12,645,071
La Plata	12·0	8.58	226.00	234.58	103	2,713	2,816
Ouray	1,015·0	6.66	100.62	107.28	6,760	102,133	108,893
Park	5,364·0	*.18	*95.67	*95.85	*951	*513,179	*514,130
San Juan	1,353·0	*1.29	*105.60	*105.60	*1,736	*141,141	*142,877
Summit	3,771·0	.....	*93.91	*93.91	.....	*354,145	*354,145
Total	179,564·5	5.34	86.21	91.55	959,377	15,480,533	16,439,910

AMALGAMATING MILLS.

COUNTY.	Ore raised and milled.	Average yield per ton.			Bullion produced from ore milled during census year.		
		Gold.	Silver.	Gold and silver.	Gold.	Silver.	Total.
	Tons.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
Boulder	4,146	17.05	46.58	63 63	70,667	193,135	263,802
Chaffee	.....	.....	.....	.....	.....	.....	.....
Clear Creek (a)	11,736	8.78	46.54	55.32	*103,008	*546,160	*649,168
Custer (b)	1,118	.38	7.88	8.26	443	8,818	9,231
Gilpin	113,427	9.91	.30	10.21	1,123,760	34,610	1,158,370
Ouray	296	33.35	2.80	36.21	9,871	848	10,719
Rio Grande	550	9.79	.....	9.79	5,385	.....	5,385
Summit	675	*7.66	.....	*7.66	*5,816	.....	*5,166
Total	131,948	9.99	5.94	15.93	1,318,272	783,571	2,101,843

* Estimated. a 14,384 tons lost by concentration. b 4684 tons lost by concentration.

LETTERS FROM THE WEST.—VIII.

Special Correspondence of the Engineering and Mining Journal.

BUTTE, MONTANA.

Ten years ago, it was thought that Montana, lying far north on the Canadian border, would be brought within the circle of national life by the Northern Pacific Railroad, but the Union Pacific, through the Utah & Northern Railroad, has forestalled her competitor. This narrow-gauge branch was projected and begun in 1872 as a Mormon enterprise, but passing under the control, first of Mr. Jay Gould and then of the Union Pacific, has been pushed forward by fits and starts, until now it has reached Butte, 390 miles from Ogden, and is completing, as is supposed, the circumvallation of Montana in harmony with, instead of in opposition to, the Northern road, which has at last entered the territory.

The railroad drive from Ogden to Butte is more full of variety than perhaps any other in the territories. At first, the road runs for about 150 miles through such fertile valleys as the northern spurs of the Wahsatch range have grudgingly spared to the Mormon farmer. It then crosses the marvelous lava-beds of Idaho, where the eye wanders over a barren plain, so level that the land merges into the sky as insensibly as does the sea itself. This desolate expanse is broken only here and there by isolated and abrupt masses of trap; and when cut by the Snake and other rivers, it is seen to be underlain by thick beds of lava, out of which the rivers have carved channels with deep, precipitous banks, between which they rush, like water through a mill-race. Away, far out of sight to the left, still in Idaho, are the rich mineral districts of Wood River, Challis, and Salmon River, while to the right, we can see across the Idaho boundary, in Wyoming, the distant range of the Rocky Mountains approaching us from the southeast, as we run due north. Presiding over the range, stands out sharp and clear the Grand Teton, 13,691 feet high, with its attendant peaks. Without any effort, we find ourselves on the summit of the Rocky Mountains, and have been warned of the passage from the lava plain to the mountains, whence the lava flowed, by the transition from aridity to scanty forest growth, rather than by any marked change in the gradients of the road. To the northeast of the mountains, we traverse the great table-lands of Montana, furrowed by hill and valley, well watered and comparatively well timbered; those table-lands, which, besides embracing the famous Yellowstone National Park, are the birthplace of both the Columbia and Missouri rivers, whose interlocking rivulets carry the waters of the same rain-shower, the one through a gorge in the Rocky Mountains to the Pacific; the other, to swell the torrents of the Mississippi and help to drown the low-lands of Louisiana.

The Montaner would have you believe his lofty land a very paradise. It is so healthy no one dies; the fruit of the soil feeds man and beast most plentifully; and from its rocks are harvested gold and silver, copper, and lead: but it is very cold! We had come straight f om the vineyards and orchards of California still laden with fruit in early October, where just the slightest touch of frost gives nightly warning oi the approach of winter; and here we met it, in all its severity, with a fall of snow and the thermometer below zero!

Butte regards her own municipal progress as being well-nigh as remarkable as that of New York or Chicago. Three years ago, you could buy corner-lots for a few hundred dollars, which you would now have to pay twice as many thousands for. And unlike the ephemeral towns of the West, Butte is building to last, by men full of faith in the permanency of her mines. The Miners' Union building, as is becoming, expresses in solid stone the firm opinion of the miners with regard to their camp. Another peculiarity has characterized Butte from the first, namely, its laudable orderliness. There is seemingly an entire absence of the rowdy element, whether vagrant or resident. To the climate and character of the ore this blessing is perhaps attributable. Cowboys and rustlers would find it difficult to carry on their predatory warfare against society in a country where the thermometer sinks below zero in October; and the mining and beneficiating of copper and refractory gold and silver ores, which can be conducted profitably only by the expenditure of skill and money, exclude from this and some other northern camps the more speculative and consequently more reckless class of miners.

The Summit Valley Mining District, which includes the mines of Butte, covers an area of about four miles by four miles, though the mines that make it famous are confined within little more than half that area. Within the district, some 500 claims have been located, and there are in full operation four copper smelting-works and twelve silver mills, large and small, with an aggregate of 221 stamps. The average of productive mines has been probably higher than in any mining district in the United States. I was told by a credible authority that the year before last there were fifty-two openings in the camp paying more than working expenses—a larger number than could be counted now when many of the mines then paying are spending more than their earnings on dead-work or construction.

The town of Butte occupies the center of the district, and every foot of it is laid out in building-lots and mining claims. It is built on the side of a hill, with a southerly exposure. Over the hill to the north, lie the Lexington and the Alice groups of silver mines, and the Alice and Moulton mills. If we stand in Main street and look southward, there stretches before us a wide, level plain, shut in to the south and east by bold mountains. On the plains to the right, we may see the smoke of the Williams smelter. To the left, at the base of the hill, is the Parrott Company's smelting-works, and farther away, those of the Bell Company, while hid from view close under the hill, is the Silver Bow mill. On our left hand, beyond a small creek and some two miles distant, rises the steep butte which gives its name to the town, and which, if the prospectors have located all the mineral-bearing ground in that direction, puts a western limit to the ore-bodies. On the same side of the Main street are the Stevens, Anselmo, and other productive silver mines, and the Gagnon copper-silver lode, which probably reappears to the right of our stand-point in the Parrott copper lode. Farther up the hill, which rises rapidly, to our left, is a most notable group of copper mines, the best developed of which is the Bell. The lode or lodes on which the Bell and Mountain and other copper claims are located seem to sweep over the eastern crest of the hill and attain prominence again in the Colusa and Hattie Harvey, on its eastern flank. In the narrow valley between this hill and a steep spur of the Rocky Mountains to the east, are built the large concentrating and smelting-works of the Montana Copper Company.

Butte is best known through the Alice Mining Company, a New York corporation, with a capital, according to the evil custom of the day, of $10,000,000. This capital in this case more nearly approximates the actual value of the property than in many others; for, although the mine is under a cloud at present, it is, without doubt, a passing cloud, and its influence would be less felt were perpetual sunshine not necessary to enable the company to bear interest on such an investment. The best of mines fluctuate in production, and these fluctuations can be counteracted only by working on large reserves. But in these days of impatient speculation, what mine-owner will open reserves on a mine good enough to be sold and stocked? And once sold and stocked, every effort must be strained and all appliances employed to raise the ore which can be won most cheaply for the payment of dividends. And thus the ore-body, on the credit of which the mine was sold, rapidly vanishes, and in its place stands poor ground. Then, consequently, instead of dividends being declared, assessments must be made; and the shareholders, who were not quick enough in slipping out, that others might slip in, declare the whole transaction a swindle, and mining no better than a game of poker. Mr. G. W. Maynard has lately made a very interesting report on the Alice, which shows the existence, it is true, of large reserves, but illustrates another phase of the present forcing system in mining. For it would seem that, in the dire necessity to pay dividends and to produce bullion, the mill has had to be kept running full, and therefore ore has been too indiscriminately broken. At the same time, in the effort to economize, inadequate machinery and an inadequate staff have been employed. Moreover, the Alice and, in fact, all the Butte mines have in the past exemplified on a small scale what the Comstock exhibited in such a startling manner, namely, the frightful waste which is incurred by working up ores when supplies and transport are extravagantly dear, and methods of treatment crude and imperfect.

On the Rainbow lode, there are actively worked, proceeding from west to east, the Moulton claim, owned by a Salt Lake City company; the Alice; and the Magna Charta. The body of ore is unquestionably very large, averaging about 60 feet wide. Two and, in places, three and four parallel veins are worked, which are but richer bands of the same lode.

The Alice mine is worked to a depth of 700 feet; the Magna Charta, to a depth of 300 feet. Between them is unfortunately wedged in a claim of only 218 feet, the Fraction, which is held at too high a figure to allow of the Alice Company buying it and working the two mines as one.

The minerals with which the silver and gold are associated are sulphurets and arseniurets of zinc, lead, copper, iron. Native silver is of course found, but sparingly. The gangue of the more highly mineralized portion of the lode is composed of quartz and carbonate of manganese, decomposed into black oxide to a depth of from 200 feet to 250 feet. The more or less decomposed granite, which occupies so large a portion of the fissures here, in California, and elsewhere, is probably a true gangue or vein-filling. The ore is therefore very refractory, and must be chloridized preparatory to amalgamation. Its average percentage, as it stands in the mine, it is difficult to determine. All ore known to run under 25 ounces is as much as possible left unbroken, and of what is mined, nearly four tons are rejected in selecting one which will bear the frightful cost of milling. The mill-returns show, according to Mr. Maynard—whose figures tally very closely with those given to me by Mr. Hall, the excellent superintendent of the company—46·05 ounces of silver and ·299 ounces of gold, or $58.70 per ton of ore milled. The hoisting-works at both the Alice and Magna Charta are good; but the example of the Moulton Company will probably have to be followed, and a Cornish pump will sooner or later replace the steam pumps now in use, which, however useful during the exploratory stages of a mine's existence, can not be relied on, and are attended with many inconveniences when employed in a large mine in active operation.

J. D., JR.

DEEP PITS AND LONG AIR-CURRENTS IN GREAT BRITAIN.

The deepest pit in Scotland is by shaft 1050 feet, and by working 1470. It is the Nitshill, Hurlet, in Renfrew; of this pit, the longest air-current is 2 miles 1246 yards. In South Staffordshire and Worcestershire, the deepest pit-shaft is 1950 feet, and is owned by the Hamstead Colliery Company, near Birmingham; the present length of air-current is 1048 yards. In South Durham, Westmoreland, Cleveland, Whitby, and the Dales, the deepest pit is the No. 2 of the Seaham Colliery, the shaft of which is 1688 feet, and the workings 2005 feet in depth. In Monmouth, Gloucester, Somerset, and parts of Glamorganshire, and Breconshire, the deepest pit-shaft is that of the Easton, at Bristol, the depth by working being only 1080 feet, the longest air-current being 3 miles 940 yards. In the district of North and East Lancashire and Ireland, the deepest pit-shaft is that of Ashton Moss, Audenshaw, Manchester, the working depth being the same. The longest air-way is that of the Bradford Colliery, Manchester, which extends above 8 miles. In the Derby, Nottingham, Warwick, and Leicester district, the deepest pit is that of the Steetley Colliery, Nottinghamshire, which is 1758 feet by shaft, and 1770 by working, the longest air-current being 3 miles and 20 yards. In the West Lancashire, the Wigan and St. Helen's, and North Wales district, the deepest pit is that of the Rosebridge Colliery, Wigan, which is 2418 feet, the longest air-current being 2 miles 622 yards. In the Eastern Division of Scotland, the Blantyre pit has a depth of 930 feet, the longest air-current being 1 mile and 1136 yards. In the South Wales district, the deepest shaft is that of Harris Navigation, Pontypridd, which is 2277 feet, the depth by working being only 2079, and the longest air current 1450 yards. In the Yorkshire and Lincolnshire district, the deepest shaft is 1533 feet, and is that of the Haigh Moor Seam, New Sharlston Colliery, near Normanton, the longest air-current being 2 miles. In the district of Northumberland, Cumberland, and Durham (north of the Wear), the Hutton Seam of the Wearmouth Colliery has the greatest depth, the shaft being 1722 feet, and the longest air-current 5 miles and 528 yards. In the North Staffordshire, Shropshire, and Cheshire district, the deepest shaft is that of the Astley, in Cheshire, which has 2060 feet in vertical depth, reduced to 1200 feet by incline in the workings, the longest air-current being 2 miles and 480 yards. Of the metalliferous mines, the greatest depth of shaft is that of the Dolcouth, in Cornwall, being 2160 feet.—*Coal.*

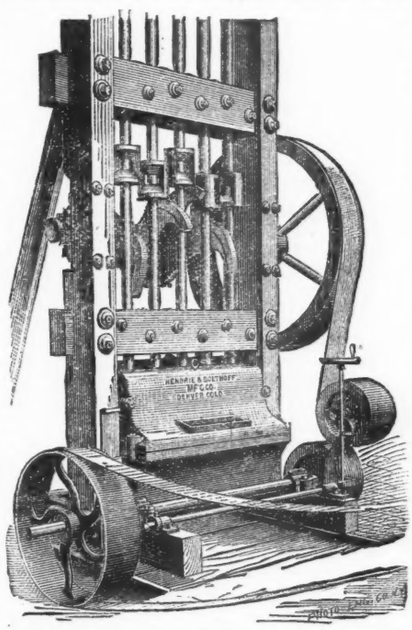
COPPER REFINING IN THE UNITED STATES.—IV.*

By T. Egleston, Ph.D., New York.

The extraordinary purity and high quality of lake copper is owing, for the most part, to the purity of the ores from which it is made; but is due also, in some respects, to the uniform care with which it is refined. On the whole, no other copper in this country is so carefully smelted. With equal care on the part of the companies in some of the other copper districts, copper in every respect equal to it could be made; but this care it does not receive. It is all the more necessary that the refining of the coppers which are made from pure sulphurous ores should be carefully done, since small amounts of cobalt, nickel, lead, and zinc are invariably present in them and injure the quality of the copper, especially for electrical purposes, when these metals are not separated. Most of these metals could be removed, but it is not done on account of want of care in refining. There is hardly an operation in the whole range of metallurgy so delicate, and which requires such nice perception, such judgment, and such mechanical skill. The men easily acquire this, provided there is some one to guide them, and their pride is stimulated as it is on the lake.

The ingredients contained in lake copper are at most seven. These are copper, iron, nickel, cobalt, zinc, lead, and silver; occasionally, there is a little trace of sulphur, which undoubtedly comes from the coal. The lead and zinc are doubtless in the ore in very variable proportions; but there is no doubt that the presence of lead is, in many cases at least, owing to the fact either that the lead has been put in, or the refining has been done in a furnace in which lead has been used. Scrap copper is not used to any extent on the lake; but all the other refineries use it, and this is one of the sources of the lead In some of the refineries, the lake ingots are melted to get them into a more convenient shape for commercial uses. When this is done in furnaces where other material has been treated, impurities are certain to be introduced from the hearth. All such material goes into the market as lake copper, hence the great variety of composition. The lake copper is entirely free from arsenic, antimony, and bismuth. It is not, however, always equally well refined, nor does it always continue of the same pitch from one end of the casting to the other. I was not allowed to take samples for analysis at the lake, as I was at Pittsburg; but that the pitch frequently changes is evident to the eye accustomed to watch the furnaces; but these differences for ordinary grades of copper are not noticeable. It is only when very high grades of copper are required that they become of importance.

More than fifty analyses have been made to test the whole question of the condition of the copper in the various stages, and over thirty of the ingot copper, some examples of which I give below. It is very interesting to watch the variation in the quantity of oxygen as well as in the amounts of the other impurities which do not remain constant during the same operation, showing beyond a doubt that as a whole the bath of copper is not homogeneous in composition.



HENDRIE & BOLTHOFF STAMP-MILL.

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
Copper	99·92	99·900	99·890	99·870	99·830	99·82
Iron	.....	.....	0·005	.....	.....	.....
Nickel	.....	0·002	0·003	0·003	0·030	.....
Cobalt	.....	.....	.....	.....	trace	0·09
Lead	.....	.....	.....	.....	.....	.....
Silver	0 03	0·030	0·030	0 020	0·030	0·06
Oxygen	0·28	0·280	0·190	0·270	0·220	0 28
	100·23	100·212	100·118	100·163	100·083	100·25

	No. 7.	No. 8.	No. 9.	No. 10.	No. 11.
Copper	99·810	99·80	99·740	99·55	99·55
Iron	0·008	.....	0·011	0·03	0·05
Nickel	.....	0·02	.....	.....	.....
Cobalt	trace	.....	.....	trace	.....
Lead	.....	.....	0·012	.....	.....
Silver	0·030	0·04	0·024	0 07	0·04
Oxygen	0·300	0·28	0 014	0·37	0·20
	100·148	100.14	99·801	100·02	99·84

These eleven analyses show that the samples are of a higher quality than any of those before published. They have been selected as examples of what can be done. The more common determinations of copper are 99·78, 99·72, 99·73, 99·58, 99·53. The amount of lead varies from nothing to 0·044. Twelve samples give the following results: No. 1, 0·016; No. 2, 0·044; No. 3, 0·012; No. 4, 0·025; No. 5, ·014; No. 6, ·014; No. 7, ·005; No. 8, ·033; No. 9, ·011; No. 10, ·013; No. 11, ·018; No. 12, ·016. The silver varies from 0·02 up to 0·12 per cent. It is not evenly distributed through the mass, as the eleven samples taken from the same charge at intervals of half an hour, whose analyses are given above, show differences of several ounces. The following determinations which were made at intervals of fifteen minutes also indicate the same want of homogeneity. They are arranged in the order in which the samples were taken:

0·013 0·013 0·004 0·032 0·010 0·012

The amount of iron is exceedingly variable; many coppers do not contain it at all. The limits that I have found are 0·01 to 0·04 per cent. Nickel and cobalt vary very much. They are often entirely absent. The quantity of cobalt even when present is generally too small to be weighed; it varies from 0·002 to 0·08 per cent. Zinc can almost invariably be found, but is generally in too small quantities to be determined. Very often it can only be detected by the spectroscope. A series of determinations in which the cobalt, nickel, and zinc were determined together, the quantity of cobalt and zinc having been found too small to separate, gave the following results: 0·069, 0·017, 0·021, 0·052, 0·002, 0·063, 0·006, 0·053, 0·07. Four other determinations gave 0·10 each, two 0·11 each, and four 0·12 each.

The copper which is made from ores found in Arizona seems likely to be, when carefully refined, even superior to lake copper. I have had no opportunity to follow the refining of the pig as closely as I have done the refining of lake copper; but examinations that I have made of some of the copper produced show that it is of exceptional purity. The following are the results of two analyses:

Copper	99·990	99·990
Iron	0·021	0·014
Zinc	trace	trace
Silver	0·008	0·008*
	100 019	100·012

No other metals were discovered, although careful search was made for them on large quantities of the copper. The very small amount of silver in the coppers of this district is very remarkable.

In examining recently some copper made from Colorado ores, which was so cold-short that cracks nearly half an inch deep were shown in the copper after its second passage in the rolls, I discovered a very appreciable percentage of tellurium. The copper could only be used for making a brass of very poor quality. This is the first time, so far as I know, that this metal has ever been found in refined copper. I hope to be able to make a careful examination of this material.

What is most remarkable about all the American coppers, as well the lake coppers as those from some of the Eastern sulphurous ores, is the entire absence of arsenic, antimony, and bismuth, which would of itself make the copper of very high quality.

The copper made from impure Western sulphurous ores is not so good, as the analysis given below shows:

Copper	99·650
Oxygen	none
Carbon	none
Sulphur	none
Arsenic	0 088
Antimony	0·035
Lead	0·044
Silver	0·066
	99·883

Other sulphurous ores free from arsenic and antimony give copper equally pure, as the analyses of the copper from Ore Knob show.

Copper	99·80
Oxygen	0 39
Carbon	none
Sulphur	none
Arsenic	none
Antimony	none
Lead	0·01
Silver	0·05
	100·25

There is every reason to believe that if the pure ores of the great Appalachian range were carefully worked, they would yield a quality of copper in every respect equal to lake, except, perhaps, on account of the cobalt and nickel, for the single quality of electrical conductivity, and even here they might sometimes compete.

The tensile strength of lake copper, as shown by several tests made on the U. S. testing-machine, is 30,790 pounds to the square inch.

* Abstract of a paper read before the American Institute of Mining Engineers.

A NEW PORTABLE STAMP-MILL.

With the object of meeting the growing demand for a portable stamp-mill to be used particularly for new districts, Messrs. Hendrie & Bolthoff, of this city and of Denver, have brought out a new design. It is, of course, the regular California stamp-mill, with such improvements and changes as the special requirements and long experience in this class of machinery have suggested. Messrs. Hendrie & Bolthoff make the mill complete in all respects, including the frame and what foundation is needed, in order to reduce to a minimum the delays and the expense incident to getting the mill ready for work. The cast-iron mortar is made with projections on the side and end, to hold the upright and horizontal timbers which fit in tightly, thereby making a very solid support to the whole mill, and preventing the getting out of line of the cam-shaft and the loosening of the mortar. The mortar is also arranged to take in more coppers than the old style, with the object of saving a larger percentage of the gold in the mortar before passing over on the plates. The mortar and housings are cast in three pieces, the two upper parts—ordinarily made of wood and clamped together—being of iron. The top and bottom of these are planed off and put together with wood restings, the top being grooved to admit of the wood or other packing, which serves as a tight joint and prevents any jar to the top housing. The back housing can be removed at any time when the copper plates in the mortars need attention. This is accomplished by removing four bolts, requiring less time to clean up than by the old method. This portion of the housing removed, the interior of the mortar, stamps, and stamp-heads are exposed to view, showing any defective parts that might possibly need attention. The front housing is also movable, but need not necessarily be removed after the mill is once set up. On each end of the mortar are cast-iron sockets for the support of the mill-frame. At the lower end of the socket are inserted cross-timbers for the purpose of supporting the counter-shaft and slack belt-tightener. This is worked by a screw and hand-wheel. The supply of water for the battery is fed through a 2-inch cast-iron pipe, which forms a portion of the back housing. Outlets in this pipe opposite the stamp-stems equally distribute the water. The cam-

* This amounts to but little over two dollars to the ton.

shaft boxings are supplied with rubber seatings, to prevent communication of any jar to the cam-shaft, thereby making themselves adjustable to the shaft.

A special feature of the mill is the tightener, which is intended to enable the feeder to regulate the number of drops per minute and to stop and start the mill, independently of the speed of the engine. The number of drops varies from 90 to 125 per minute. The weight of the heaviest part of the mill is 550 pounds. Five different styles are made, the weight of each stamp being 100, 300, 500, 650, and 750 pounds respectively; the total weight, 1500, 6000, 8500, 9500, and 12,000 pounds; and the estimated horse-power required, 1, 3, 5, 8, and 12-horse respectively. The capacity per day for the five different styles is given as 4, 8, 10, 15, and 20 tons.

BRICKWORK UNDER PRESSURE.

During the construction of the tunnel under Dorchester Bay in Boston, it became necessary to construct a brick bulkhead that had to withstand the pressure due a water column, 162 feet high, and, as it was intended to shut off a leak amounting to 240,000 gallons per 24 hours, it had to be water-tight. Mr. D. Stauffer gave the following description of this work before the Engineers' Club of Philadelphia:

The tunnel section at the point selected for the bulkhead was practically 10 feet square. The bulkhead was built directly across the tunnel, 50 feet in front of the heading where the water was struck. Plank dams filled with puddle clay were first thrown across the tunnel, each side of the bulkhead site, and a 6-inch wrought-iron pipe used to carry off the water during construction—the pipe being built into the brickwork. An arched form was adopted, 4 feet thick at the crown and 2 feet rise in a span of 10 feet. Hard-burned bricks were used, laid in mortar made of one part English Portland, one part Newark Rosendale, and two parts clean, sharp sand—a compound found equally strong with English Portland, and sand one to one, and having the advantage of working smoother on the trowel, and adhering better to brickwork in wet places. Skewbacks for the arch were roughly picked out in the rock at the sides. After the cement had set, the water was shut off by screwing a cap on to the outer end of the 6-inch cap. The pressure against the wall was $72\frac{1}{10}$ pounds per square inch, or about 519 tons distributed over the face of the bulkhead. The wall was tight for about 48 hours; then water came through the *brick* itself, rather than through the joints, in amount equal to one half the original volume. The water was let off and a second experiment tried. The main wall was torn down sufficiently to allow men to pass behind it, and a second wall only 12 inches thick was built back of the first, and two feet distant. The space between these walls was well rammed with puddle clay, extending to the rock on all sides. The second wall was made purposely light, as its yielding to the pressure would only more effectually consolidate the clay between it and the unyielding wall in front. The bond used in the main wall was one so laid that there were no continuous horizontal joints through the wall. The result of the last construction was to completely shut off the water from this leak, at a great saving of fuel and pumps. The Dorchester Bay tunnel is 7000 feet long, with its average invert grade 143 feet below low-tide mark in the bay under which it passes. The tunnel is driven through a formation of clay, slates, and conglomerates for its entire length; rock, very seamy, and much water encountered.

We may add that in mining bulkheads, which often must carry much greater pressures, the practice is to let the water rise slowly behind the bulkhead, by allowing a portion of the water to flow through a safety-valve at the bottom of the level. It has been the experience in all such cases that in the beginning quite a quantity of water will come through the pores of the brickwork, which is said to be "sweating." Gradually, however, the pores are filled by carbonate of lime, and a thick coat of that substance forms on the face of the bulkhead, completely cutting off the entire flow of water. A column of from 400 to 500 feet has been borne for many years by such bulkheads.

OFFICIAL STATEMENTS AND REPORTS.

CENTRAL MINING COMPANY, LAKE SUPERIOR, MICHIGAN.

The report of this company, of which G. A. Hoyt is president, and John Stanton secretary and treasurer, has been published. From it, we learn that the production of mineral during the year 1881 was 951 tons 1445 pounds, and the quantity smelted was 978 tons 1910 pounds, which yielded 72·5 per cent, or 1,418,465 pounds of refined copper. During the year, 1,418,465 pounds of copper were sold, at an average price of 17·14 cents, realizing $243,194.15; which, with an increase of the value of mineral at the mine (123 tons) of $2065.62, and the amount obtained for sales of silver, $1109.62, carried the net value of the product to $246,369.39; and, adding balance of interest account, $249,635.92. The working expenses at the mine were $167,857.47, and the expenses for smelting, freight, etc., were $34,158.39, making a total of net operating expenses of $202,015.86, and leaving a profit of $47,620.06. Owing to an over-valuation of the copper on hand at the end of the previous year, the surplus then reported was too high, it being only $343,079.14. With the profit, it was, at the end of the year, $390,699.20. From this amount, two dividends of $60,000 each were paid, on February 25th and August 1st, and $22,462.43 were expended for Rand power drilling machinery, a total of $142,462.43, leaving a net surplus on December 31st, 1881, of $248,236.77. From this, a dividend of $50,000 was paid on February 4th, 1882, making a total since the formation of the company of $1,610,000 on sales of copper and silver aggregating $7,038,538.28, and on a capital advanced of $100,000. The assets include 123 tons of mineral, valued at $24,602; merchandise in store, $43,703.26; supplies, $44,812.60; and cash, $2258.96; a total of $115,376.82 as assets at the mine. The assets at New York are $159,509.65, including $70,000 for loans on call, $17,301.12 cash, $14,105.82 copper bills, and $56,550.25 for 293,341 pounds of copper sold, on hand. The balance of assets over liabilities is $248,236.77. The permanent investments for making plant, real estate, etc., are $277,954.32.

Mr. James Dunstan, the agent at the mine, reports, under date of January 1st, that the following ground was broken, at the average cost given. We would state, however, in connection with these figures, that we do not know whether they are arrived at by including the supplies at store prices, a practice which is adopted at some of the mines of Lake Superior: Sinking in shafts and winzes, 317 feet, at $29.81; drifting on the vein, 1695 feet, at $11.81; drifting on the conglomerate, 83 feet, at $12.65; stoping on the vein, 32 cubic fathoms, at $30; stoping, 1601 superficial fathoms on the vein, at $16.23, and 239 in the conglomerate at $24.54. The total amount of ground broken in openings and stopes was 3570 fathoms. The production was 897,670 pounds of stamp copper, 415,015 pounds of kiln copper, and 163 masses weighing 590,760, a total of 1,903,445 pounds of mineral, or a yield of 533 pounds of mineral per fathom, or 386 pounds of ingot per fathom of ground broken. The expenses at the stamp-mill were $7599.96 for labor, $6093.75 for 1875 cords of wood, and $689.55 for sundries. The running time of 24 heads was 134·5 days, 6·3 tons being crushed per day per head. Altogether, 20,549 tons were stamped, at a cost of stamping and washing per ton of 70 cents, the yield of the rock in mineral being 2·18 per cent, and the yield of ingot copper 1·58 per cent. The cost of breaking and selecting the rock and tramming it to the mill was 10·26 cents per ton. The cost of copper laid down in New York we estimate from the figures given at about 15·91 cents.

The production during the year was about 25 per cent less than that of the preceding year; but the amount of work performed has been larger in every department, except in the cutting of masses, and development-work has been vigorously prosecuted. The bottom workings appear to be opening out a larger and more promising vein, which is a matter of much interest to all the mass mines of the Keweenaw District, as the Central is the deepest, and any fresh developments in the lowest levels are considered a proof against the prevailing idea that the mines of this district grow poor in depth. Mr. Dunstan reports that the Rand duplex compressor and the five Rand drills purchased are working satisfactorily, and expects that they will enable work to be done faster and cheaper, which the experience at other mines of Lake Superior fully bears out.

STANDARD, BODIE, CAL.

The annual report of the Standard Consolidated Mining Company, of which Daniel Cook is president and William Willis, secretary, is an elaborate document, which contains information of interest. The mine yielded bullion the gross value of which, according to assays made at Bodie, was $1,905,241.75 of gold and $179,309.03 of silver. The assay value of the bars, as determined by the refinery, was $1,904,496.29 of gold and $154,602.02 of silver, a difference of $25,452.47. The refinery charges were $9576.78, leaving $2,049,521.53 as the net value of the bullion, a discount of nearly 17 per cent from the gross value. The dividends paid during the year were $975,000, and the balance was increased from $87,821.20 at the close of the preceding year to $111,716.66 at the end of the last. On the 1st of February, the dividend payments were in San Francisco on 1230 shares and in New York on 98,770 shares. The freight on bullion from Bodie to San Francisco was $16,231.85, the rate generally being three quarters of one per cent. Among the items on the debit side of the balance-sheet are $89,980.25, one half of the expenses of the Bulwer-Standard mill, $19,658.75 expenses at San Francisco, $10,409.53 expenses at Bodie, $18,518.30 for freight on supplies, etc., $31,997.79 for fuel, $100,613.47 for lumber and timber, $205,567.50 for mine labor, $47,288 for mill labor, $206,662.50 for ore-crushing, $61,043.21 for supplies bought at San Francisco and Bodie, $15,750 for salaries, $32,513.16 for taxes, and $307,029.08 cash.

Mr. William Irwin, superintendent, makes a report of the work done during the year, and submits a statement of the cost of mining per ton. From it, it appears that 63,512 gross tons of ore were extracted at an average cost per ton of $4.12. This figure, however, seems only to cover the cost of stoping. We find under "labor" an item of $160,314.25, while in another statement that item only appears as "stoping," and the following others are enumerated by him, which ought reasonably to be charged to the cost of mining: Cross-cutting, $5948; drifting, $9994; uprising, $2284; winzes, $238; pump, $2790; shaft, $6043.85. The following items may be doubtful: Surface work, $28,397.05, and tramway, $5660. The secretary makes the item of mine labor $205,567.50. This figure introduced, instead of the one simply referring to stoping, carries the cost above $5.

The statement is not very lucid so far as supplies are concerned. We find the following items: Supplies on hand February 1st, 1881, $61,494.80; supplies purchased, $20,639.44; and "value supplies on hand February 1st, 1882," $91,260.30. On the face of it, this would look as though the supplies held at the close of the last fiscal year and those bought during the year increased in value to such an extent that they not only paid for all that was used during the year, but left an apparent profit of $9126.06. This, of course, would be very satisfactory for the shareholders; but it is hardly fair to introduce it as an element in a plain statement of cost of mining. It may be possible that the "value of supplies on hand February 1st, 1882," includes lumber and fuel. If it does, it should be stated, because the inference from the fact that lumber and timber appear in the statement of cost with $77,654.65, and fuel with $26,417.79, would be that it did not. The total cost of mining, according to this statement, was $261,714.41. We do not wish to be understood to doubt the accuracy of the figures submitted. We desire only to bring forward a few points in protest of Mr. Irwin's peculiar way of getting at the average cost of mining.

The statement of the cost of milling in the Bulwer-Standard mill shows similar peculiarities as to method in computing average cost per ton. The superintendent makes the cost of milling 40,624 gross tons (with 10 per cent moisture), $132,082.20, or $3.25 per gross ton, or $3.57 per net ton. The secretary gives an itemized account of the expenditures of the same mill, and makes it $179,961.05. The latter makes labor $83,661.25, including pay-roll, $62,467.25; improvements, $10,643.50; transporting ore, $9899.25, and some smaller items. Perhaps the rejection of these, except the first, by the superintendent, may be justified; but while the secretary puts down supplies at $47,089.23, the superintendent makes the consumption only $29,079.98. He does not include such items as insurance, taxes, etc. It is probable, therefore, that if the actual expenditure be fully gathered, the cost of milling will be a little higher than that calculated by the superintendent. We may note here that the Standard Company paid during the year $206,662.50 for crushing 18,787 tons of ore in the Bulwer-Standard mill, or at the rate of $11 per ton. It therefore paid, for the use of one half of the mill of which it owns the other

half, $26,701.55 more than the active expenditures of running the whole mill were. The entire outlay of the company for working 40,634 gross tons in the Bulwer-Standard mill was therefore $296,643.02, or about $7.30 per gross ton. The Standard mill, which belongs to the company alone, worked 22,878 gross tons of ore at any average cost, according to the superintendent, of $4.02. The labor per ton is $1.98 for the Standard, against $1.55 for the Bulwer-Standard, and the cost of fuel for the two mills was respectively 24 cents and 76 cents per ton.

The report is very full, particularly so far as the explanations of the secretary's balance-sheet are concerned. A plan and thirteen plates of sections accompany it.

THE ANTHRACITE COAL TONNAGE FOR MARCH.

Mr. John H. Jones, accountant, prints the following statement of the anthracite coal tonnage for the month of March, 1882, as compared with the same period last year :

	March, 1882.	March, 1881.	Diff'nce, Decrease.	For year 1882.	For year 1881.	Diff'nce, Decrease.
Ph'a. & Read. RR	491,933 00	495,835 05	3,902 05	1,264,587 02	1,324,409 03	59,822 01
Lehigh Valley RR.	445,326 00	442,059 09	*3,266 11	1,142,294 17	1,194,635 12	52,340 15
Cen. RR. of N. J.	313,372 01	337,753 15	24,381 14	806,889 11	897,777 04	90,887 13
Del., Lack. & W. RR	348,285 04	362,899 17	14,614 13	900,741 04	992,352 09	91,611 05
Del. & Hud. Canal Co.	253,416 00	291,600 05	38,184 05	663,156 07	764,280 12	101,124 05
Pennsylvania RR	144,494 06	143,498 03	*996 03	446,517 07	441,079 00	*5,438 07
Penna. Coal Co	97,283 15	109,443 09	12,159 14	260,308 15	286,432 01	26,123 06
N. Y., L. E. & W. RR	13,932 09	42,751 19	28,819 10	46,417 10	115,694 19	69,277 09
Total	2,108,042 15	2,225,842 02	117,799 07	5,530,912 13	6,016,661 00	485,748 07

*Increase.

The stock of coal on hand at tide-water shipping points, March 31st, 1882, was 666,318 tons; on February 28th, 1882, 546,315 tons; increase, 120,003 tons.

THE PRODUCTION OF IRON AND STEEL IN GREAT BRITAIN IN 1881.

The following summary of the production of the iron and steel works of Great Britain gives briefly the statistical data gathered by J. S. Jeans, Secretary of the British Iron Trade Association :

Description.	1881. Gross tons.	1880. Tons.	Increase. Tons.
Production of pig-iron	8,337,364	7,721,833	655,531
" " puddled bar	2,681,150	unknown	.....
" " finished iron in Cleveland	669,189	508,434	160,755
" " Bessemer steel ingots	1,441,719	1,044,382	397,337
" " Bessemer steel rails	1,023,740	739,910	283,830
" " Bessemer steel plates	21,989	21,500	489
" " open-hearth steel ingots	338,000	251,000	87,000
" " open-hearth steel rails	42,000	unknown	.....
" " open-hearth steel plates	78,000	unknown	.....
" " iron ore from the coal measures	11,858,766	11,664,726	194,040
" " coal	154,184,300	146,969,409	7,214,891
Exports of pig-iron	1,480,196	1,632,343	.....
" finished iron	1,193,559	1,156,817	36,742
" steel rails	594,419	459,187	135,232
" tin plates	242,448	217,718	24,730
Imports of iron ore	2,449,277	2,634,401	.....
" bar iron	120,114	95,158	24,956
Shipbuilding tonnage constructed	1,013,208	796,221	216,987
" " in course of construction, January 1st, 1882	1,264,603	843 000	421,603
Steel shipbuilding launched in 1881.	71,533	38,164	33,369
" " constructing on January 1st, 1882	183,818	.....	.....

CLEANING AND LUBRICATING WIRE ROPE.

Messrs Parrington & Almond, of the Wearmouth Colliery, Sunderland, England, have designed and patented a wire rope cleaning and lubricating machine, which has, for some time past, been employed with very satisfactory results at the above colliery. The machine is applicable to flat and round ropes, these passing between a pair of flat wire brushes, the pressure of which on the ropes can be adjusted by a screw: two hoppers are placed below the brushes, in order to catch the dirt which is removed. Lower down, the ropes pass between a pair of revolving brushes, and then between a pair of rollers of soft material, which exert an adjustable pressure. These rollers are geared to the revolving brushes, and cause them to move in a direction contrary to that of the ropes. For cleaning the rope, revolving wire brushes are used, and these, as they rotate, penetrate between the strands of the rope and leave the latter clean for receiving the lubricant. When oil or grease is to be applied, the rotating wire brushes are replaced by strong hair brushes, which are fed with lubricant from feeders above, this lubricant being thoroughly brushed into the outer strands of the rope. The changing of the revolving brushes can be effected very readily, and the brushes act equally well whether the rope is running up or down. It is claimed for the machine described that, from the thorough manner in which the ropes are cleaned, their condition can be more readily and accurately determined by inspection, while, from the systematic manner in which the lubricant is applied, there is a great reduction of waste and a better quality of lubricant can be profitably used.

THE COAL MINES OF THE UNION PACIFIC RAILROAD.

According to the annual report, the production and cost of coal mined by the Union Pacific Railroad Company compare as follows :

	Tons.	Cost.	Av. cost.
In 1881	587,493	$814,613.56	$1.39
In 1880	445,129	547,325.66	1.23
Increase	142,364	$267,287.90	$0.16

The cost of additional machinery and of improvements of all kinds for increasing the capacity of existing mines and for the opening of new mines is included in the above. During the year 1881, there were expended for these purposes :

At Carbon mines	$63,793.52
At Rock Spring mines	17,881.07
At Almy mines	69,926.18
At Grass Creek mines	23,054.84
Making the total	$174,655.61

The annual report says that, although the quantity of coal mined by the company has increased for some years at the rate of 25 per cent per year, yet the demand for coal on the line of the railroad has increased in a greater proportion. The improvements made the past year have increased the capacity of the mines to double the output of the year 1881, and it is now expected that the additional railroad equipments, under contract to be delivered early this season, will enable the company to meet promptly the demand for coal during this year. The company has an interest in fully supplying this demand, not only on account of the direct profit realized from the sale of coal, but also from the development of business that results from an abundant supply of cheap fuel of an excellent quality for domestic and manufacturing purposes. The sales of coal to other railroad companies and to private consumers compare as follows :

	Tons.	Amt. sales.
In 1881	193,031	$1,098,863.83
In 1880	137,119	743,087.05
Increase in 1881	55,912	$355,776.78

The production and cost of coal for seven years of the different mines of the company are as follows :

Year.	Carbon.			Rock Springs.		
	Tons.	Cost.	Per Ton.	Tons.	Cost.	Per Ton.
1875	61,750	$126,716.13	$2.05	104,667	$192,973.09	$1.84
1876	69,062	109,193.02	1.58	134,953	185,844.60	1.38
1877	74,343	92,702.41	1.25	146,494	162,075.07	1.11
1878	62,418	75,026.14	1.20	154,281	152,796.90	.99
1879	75,325	89,541.90	1.19	193,251	190,338.36	.98
1880	100 434	136,040.40	1.35	244,460	303,818.41	1.24
1881	156 820	236,773.03	1.51	279,908	355,978.10	1.27
Total	600,152	$865,993.03	$1.44	1,258,014	1,543,824.53	$1.23

Year.	Almy.			Total.		
	Tons.	Cost.	Per Ton.	Tons.	Cost.	Per Ton.
1875	41.805	$72,195.88	$1.73	208.222	$391,885.10	$1.88
1876	60,756	80,482.94	1.32	264,771	375,520.56	1.42
1877	54,6·3	57,353.89	1.05	275,480	312.131.37	1.13
1878	59,096	59,393.81	1.00	275,795	287,216.85	1.04
1879	71.576	83,368.90	1.16	340.152	363,249.16	1.07
1880	100,235	107,466.85	1.07	445,129	547,325.66	1.23
1881	110,157	132,652 38	1.20	587,493	814,613.56	1.39
Total	498,268	$592,914.65	$1.19	2,397,042	$3,091,942.26	$1.29

The total for 1881 includes Grass Creek, 40,608 tons, cost, $89,210.05; average per ton, $2.20.

WE have received advance-sheets of the statistics relating to coal contained in the annual report of the Bureau of Industrial Statistics of the State of Pennsylvania. According to that document, 319 collieries, employing 75,169 employés and working an average of 275·01 days during the year, produced 27,929,128 tons of anthracite. The total amount of wages paid to employés was $29,454,781, or an average of $1·0655 per ton. The amount of anthracite produced per annum to each employé was 373·14 tons. In the bituminous regions, of course, the miners got out much more coal, 442·37 tons per man per annum, although they worked only 217·07 days during the year. The total number of collieries was 382, employing 35,530 persons, to whom $14,540,057 were paid, the total production being 15,692,923 tons. The returns give the total number of coke-ovens in Pennsylvania as 6640, which produced 2,176,403 tons, probably as near the maximum capacity per oven as they will ever be, as the business during 1881 was so good that it is said that almost any bit of masonry which would not crumble to pieces was used to turn out coke. A production of about 325 tons of coke per oven per annum is therefore probably a fair estimate for the capacity of such a plant.

We regret to see a number of blanks in the tables whose totals we have quoted, and they contain, too, many round figures. This is a matter much to be regretted, because it shows that many of our operators persist in refusing to recognize the value of exact statistics. This is particularly striking so far as bituminous coal mines are concerned, the returns from the anthracite mines being nearly complete. We trust that the operators will meet the efforts of the Commissioner of Industrial Statistics, by promptly furnishing him with the figures asked for. They are not unreasonably numerous, nor do they involve the publication of those private business matters which every man has a right to keep to himself.—*Coal.*

GENERAL MINING NEWS.

ARIZONA.

TOMBSTONE DISTRICT.

The mines of this district ably maintain their reputation as bullion producers, the output for the month of March aggregating $467,408. This has principally been the result of the operations of five companies—the Contention, Tombstone, Grand Central, Girard, and Vizina. The mines are reported to be in excellent shape and the mills in steady operation. A Tombstone dispatch, dated April 17th, says: The Flora Morrison shaft is 632 feet deep. The winze from the 330 level is down 100 feet, showing high-grade ore. The machinery on the Tombstone new combination shaft will be finished and running to-day. The shaft is down 120 feet, 40 feet being in ore. The Grand Central mine is shipping the usual quantity of ore, all from the 200 level. The ore in the Old Guard mine is increasing in richness, averaging over $100 on a four-foot vein. The Ingersoll mine is looking well. Three hundred tons of ore have already been milled.

YAVAPAI COUNTY.

TIP TOP.—The superintendent's letter of April 3d says: The north winze is down 51 feet below the 600 level; the vein in the bottom is 10 inches wide of $50 ore. The north drift on the 600 level is in 306 feet from the main shaft; we think we are near the end of the ore-chimney on the north. The total length of the ore chimney to date on 600 level is 531 feet. No material change in stopes. Ore extracted and sent to mill from various levels, 55 tons; assay value, $159.52. Amount of bullion received, 7406¼ ounces, $8466.72. March 31st. Amount of bullion shipped to office of company, 20,699·50 ounces, $23,575·60. This $23,575·60 is the gross clean-up for March, and will net about $20,000 (16 per cent discount).

CALIFORNIA.

SIERRA BUTTES.—According to the annual report, the quantity of ore extracted from the mine during the half-year ended December 31st, 1881, was 24,481 tons, at an average cost of $3.55 per ton; and the quantity milled, 24,534 tons, at an average cost of $0.59 per ton; thus making the average working cost $4.14 per ton. The average yield of ore in free gold was $6.10 per ton, and, including the bullion obtained from the tailings, $6.57 per ton, as compared with $7 in the preceding period.

The Eureka mine, belonging to the same company, produced during the half year 26,290 tons of ore, the Rough and Ready mine, 2470 tons, and the Seventy-six mine, 4490 tons, making the total output 33,250 tons, at an average mining cost of $3.05. The quantity of ore milled was 33,165 tons, of which the Mammoth mill crushed 4560 tons, and the Mohawk mill 28,605 tons, at an average milling cost of $0.42 per ton, making the average working cost $5.47 per ton. The average yield of ore was $7.72 per ton, against $6.87 per ton on the previous term.

THE BODIE DISTRICT.

Bodie mines are reported as having undergone little change during the week ended the 8th inst. The usual development-work is going on; but outside of the strikes in Standard, Bodie, and Noonday, which continue to look well, there is little of interest to note. On the 500 level of Standard, west cross-cut No. 1 is in 398 feet; the ground is hard. The south drift from west cross-cut No. 1 has been advanced 18 feet; total length, 95 feet. The vein in the face is 4 feet wide, of good ore. The south drift from the top of uprise No. 1, is in 104 feet. The vein is 5½ feet wide. The north drift is 90 feet in length, showing a ledge 6 feet wide. Bodie sent to the mill during the week, 121 tons of ore, the average pulp-assay of which was $69.74. The bullion shipment for the week was $10,390.27. The various workings of the mine are reported looking well. The stereotyped report is made relative to the operations in Bulwer; the progress in the west cross-cut from the 500-foot level of the Standard and in the west cross-cut, 700-foot level, of the Standard, is about 10 feet per week, and "the rock is very hard." The Syndicate is steadily running on ore from the mine. The Noonday mill is running on ore from the stopes in the Noonday and North Noonday mines. The joint incline of these companies has now attained a depth of 158 feet below the 512-foot level.

COLORADO.

CLEAR CREEK COUNTY.

The mines of this county, many of which are stocked and selling on the New York market, are, as a whole, looking unusually well and making frequent shipments, which, though not generally consisting of very high-grade ore, yield a good margin after deducting the cost of mining and treatment. The Freeland Company is making preparations for erecting new works, and work in the mine is suspended. The Unadilla Mining Company is working eleven men on the Eagle mine and making shipments of concentrating ore. The Pelican-Dives main shaft has reached a depth of 900 feet, and sinking has been stopped. There are about 100 men at work in the mines of this company, and good ore is shipped from the Unicorn and Eagle Bird lodes. The Albro tunnel is in 400 feet, and is driven ahead under contract. The Consolidated Pay Rock mine is shipping to the Silver Plume Sampling-Works.

GILPIN COUNTY.

The more prominent mines in the vicinity of Central City continue as at last report, and the mills are kept busy crushing the product. The California Consolidated Mining Company, which recently purchased the Standley-California mine, has begun work on the mine, and expects to have the 50-stamp mill in operation in a few weeks.

JEFFERSON COUNTY.

The smelting-works at Golden are worked to their full capacity. The mines of Gilpin and Clear Creek counties are sending them large quantities of ore, and there is received from the Robert E. Lee mine, of Leadville, one car of ore per day, which yields from $100 to $600 per ton.

LAKE COUNTY.

There is little to be said of the Leadville mines further than that the large shipments and the favorable outlook continue. One of the most convincing indications of Leadville's prosperity is the large stocks on hand at the smelters, which, although working to their utmost capacity, can not treat all the ore they receive, and are accumulating large quantities in their bins and yards. The mines of Fryer Hill continue to be the leading features of interest, though there is a large increase in the output of the Carbonate Hill mines.

Amie continues to present the same favorable appearance; the returns from the smelters show the ore extracted to be of high grade. There are a few men at work on the Heytrossar and Lent shafts of the Big Pittsburg. Catalpa is pushing development-work, and manages to extract enough ore to pay mine expenses. The lessees on Climax report nothing new; but there is a prospect that some important developments will shortly be made. Chrysolite is making large ore-shipments, but is troubled considerably with water in the Roberts shaft. Dunkin is working both shafts, and shipping ore in small lots to the smelters. The Glass-Pendery mine is worked through the Pendery shaft. The miners are employed driving development-work. The mines of the Leadville Consolidated Company are said to present a greatly improved appearance. The output is about 300 tons per month. One of the mines that contributes a considerable share to the output of the camp is the Matchless, the property of Lieutenant-Governor Tabor. The net monthly product is about $80,000. The ore-shipments from the Robert E. Lee are maintained, the richest going to the Golden works, while the rest is sent to the Leadville smelters.

AMIE.—The Leadville *Index* reports this mine as follows: Descending the Deer Lodge shaft, through which the ore is now extracted, the new workings are reached at a depth of 185 feet. Some ore has been taken out near the bottom of the shaft, and a drift run northwest about 30 feet, at which point ore was encountered and followed by an uprise and drift, the course of the ore-body being a little north of west. The ore, which at first was a very high-grade galena, has gradually changed into a carbonate, and in the face and floor of the drift is a fine grade of sand carbonate, several feet in thickness, and with indications of opening into a large pocket, as it is gaining in width and pitching sharply. At the head of the uprise, another drift has also been run, a little south of east, from which some ore has been taken, and which shows a good face of galena and hard carbonates. Considerable ore has already been shipped from these new workings, and the ore in sight is sufficient to enable the shipments to be maintained for some time, while the prospects of the ore-body now worked being continuous and increasing in size are excellent. From the new or north Amie shaft, a drift is driving to connect with the Deer Lodge workings. A body of excellent iron was passed through in this shaft, and an uprise has been made through the iron, from which a drift is running southeast, and is expected to connect with the New Deer Lodge workings within a week. This drift is now within a few feet of the ore-body already mentioned, and which, from its trend, it can hardly fail to catch. A drift was also started north from this shaft yesterday. The old workings of the mine will also be extended to connect with those from the north shaft through the north drift from the No. 3 shaft, which has about 100 feet to go before the connection will be made. Explorations will then be made into the large block of virgin ground lying east of the drift last mentioned, and between it and the Climax contract ground and the other properties on the east. This territory is as yet untouched, and lies directly on the course of the ore-chutes developed on the east. Ore is taken from the Climax contract at a point sixty feet above the Amie workings, and close to the Amie line, and it is probable that the same ore-body will also be found in that portion of the Amie ground now to be prospected. It is also not improbable that a connection will be found between the ore-body now developing, and the one in the old workings.

PARK COUNTY.

An event of considerable importance to the mining interests in the vicinity of Alma was the starting up of the Alma smelter on the 3d inst. The smelter was in successful operation for four days, when an accident necessitated shutting down, but it is expected to resume work in a few days. At and around Alma and Fairplay, the mining outlook is excellent.

DAKOTA.

Only three mills in the vicinity of Central City are at work. The De Smet mill recently started up on ore from the Father de Smet mine, the Great Eastern mill is working Flora Bell ore, and Cassell's mill is crushing ore from the Black Tail, Little Maud, and Cheyenne, and tailings from the gulch. On the 4th inst., the entire roof of the McGinty chamber, Father de Smet mine, caved, breaking down thousands of tons of ore, which will be sent to the mill.

MONTANA.

The mines in the Summit Valley, or as it is better known, the Butte District, present the same aspect, such of the mines as are worked being thoroughly and energetically developed. Costly and substantial surface improvements are making on many of the mines, which will greatly facilitate their development during the coming season. The Moulton mill is running steadily, principally on ore from that mine. The Alice and the Magna Charta mines are keeping the mills at work. Developments in the Gagnon are the same as at last report. The new machinery for the Lexington mill is being set in place.

NEVADA.

COLUMBUS DISTRICT.

Official reports are as follows:

MOUNT DIABLO.—The stope above the east drift on the third level shows a larger body of ore than at time of last report, and the prospect at this point is encouraging. Near winze No 1, on this level, a ledge of high-grade ore is worked that looks very promising. The stope near the center of the mine, below the second level, continues to open well, and the outlook at this place is very good. The stopes on the first level west of the shaft are giving considerable ore of good quality. The stope east of the shaft has been discontinued, the ore found being of a very poor quality. Shipments of bullion were made on the 1st instant amounting to $8435.42; and on the 4th instant, amounting to $8088.35. The total production for the month of March was $68,845.46.

NORTHERN BELLE.—The adit and the levels above the fourth level present about the same appearance as last week, and continue the usual production of ore. Sixty tons of ore are extracted daily and sent to the mills, both of which are running steadily and doing the regular amount of work. A shipment of bullion amounting to $6558.62 was made on the 6th inst. The total shipments of bullion on March account aggregate $67,308.85.

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, April 21.

The mining market this week has been exceptionally dull and uninteresting. We may say that the Robinson, South Pacific, and State Line stocks have obtained full control, and very little is done in the way of selling shares outside of these stocks. Moose has been very strong this week, and to-day was very active. This, evidently, has been accomplished simply through manipulation, as there is nothing from the mine, so far as we are able to learn, to warrant this advance. The Comstock shares have not attracted much attention, and it is evident that the long looked for boom has again been postponed. The sales of mining shares on all the Exchanges amounted this week to 1,360,215, as against 1,249,902.

The Leadville stocks have been moderately active, and have shown a little weakness. Amie was sold from 36@28c., closing at 32c. Chrysolite had a fair business at steady prices, the sales amounting to 20,250 shares, at $5.50@$5.13. The superintendent of this mine has shipped this week 277 tons of ore, and remitted to the home office $15,500. He telegraphs that every thing is looking well. We print elsewhere a more detailed and authoritative statement of the present status of this mine. Dunkin was steady at 37@50@45c. Hibernia sold from 10@16c. Iron Silver was quiet and steady. Little Chief was about steady, selling at 94@87c., closing to-day at 90c. Little Pittsburg was quiet and steady.

The Bodie stocks were very quiet at about steady prices. Bodie, with sales of 1625 shares, sold from $6@$5.63@$5.75. Standard sold from $18¼@$16, closing at $17 to-day.

The Comstock shares were quiet and steady. California was quiet, the "assessment-paid" shares selling from 34@30c., and the "assessment-unpaid" shares selling from 14@8c. Consolidated Virginia showed some weakness, under a fair business. The sales amounted to 13,035 shares at 89@65c., closing at 67c. Sierra Nevada was quiet and steady at $8⅜@

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	SHARES. No. in 1000's	SHARES. Par Value.	ASSESSMENTS. Levied to date in 1000's.	ASSESSMENTS. Date and amount per share of last.	DIVIDENDS. Total paid to date in 1000's.	DIVIDENDS. Date and amount per share.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE. April 15. H.	April 15. L.	April 17. H.	April 17. L.	April 18. H.	April 18. L.	April 19. H.	April 19. L.	April 20. H.	April 20. L.	April 21. H.	April 21. L.
Alice, Mon.	460	25	*	....	400	De 81 10	3.00	.....	.36	.33	.35	.33	.34	.28	.31	.31	.34	.31
Amie Con., Co.	500	10	*	....	305	My 80 10	.35	.33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Atlantic, Mich.	40					Fe 82 2 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Argenta, Ne.	100	100	140	Se 81 10	40	Fe 80 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bar & Walker, Ut.	100	10	*	....	60	No 80 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bassick, Co.	100	100	*	....	25	Fe 80 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belle Isle, Ne.	100	100	55	Se 81 10	300	De 79 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Black Bear, Ca.	30	100	15	Se 79 50	844	Ap 82 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belcher, Ne.	104	100	2380	Se 81 1 00	16397	Ap 76 75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bodie Cons., Ca.	100	100	125	De 81 50	1200	Mr 80 25	6.00	5.88	6.00	.....	.....	.....	5.88	5 63	5.88	.....	5.75	.....
Breece, Co.	200	25	*	....	2	Fe 80 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bulwer, Ca.	100	100	30	De 77 50	50	Ap 82 10	.....	.....	.....	.....	2.10	.....	.....	.....	.....	.....	2.05	.....
California, Ne.	540	100	378	Mr 82 20	31320	De 79 50	.34	.10	.14	.....	.13	.12	.13	.11	.12	.10	.30	.08
Cal. & Hecla, Mch.	100	25	....	....	20850	Fe 82 5 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Caribou Con., Co.	100	10	*	....	50	Mr 80 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Catalpa, Co.	300	10	*	....	180	My 81 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chrysolite, Co.	200	50	*	....	1000	De 81 50	5.25	4.60	5.50	5.13	5.38	5.25	5.25	5.13	5.38	5.13	5.13	.....
Climax, Co.	200	10	*	....	180	Au 80 30	.....	.....	.....	.....	.....	.....	.....	.....	.27	.....	.....	.....
Cons. Va., Ne.	540	100	735	Ja 82 30	42930	Au 80 50	.69	.68	.69	.65	.72	.71	.72	.70	.77	.68	.70	.65
Copper K'b, N.C.	1000	1	*	....	15	No 80 02	.02	.....	.02	.....	.02	.....	.....	.....	.02	.....	.02	.....
Copper Queen, Ar.	250	10	*	....	275	Ap 82 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crown Point, Ne.	100	100	2573	Se 81 75	1188	Ja 75 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
D'dw'd-terra, Dk	200	25	*	....	4655	Ap 82 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dunkin, Co.	200	25	*	....	200	Ju 81 7½	.....	.....	.40	.....	.37	.....	.37	.....	.38	.....	.50	.44
Eureka Cons., Ne.	50	100	100	My 76 1 00	4755	Ap 82 20	22½	.....	23.00	22½	23.00	22¾	.....	.....	.....	.....	22.25	.....
Excelsior, Ca.	100	100	300	Ja 82 1 00	850	Se 80 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.50	.....
Fa. de Smet, Dk.	100	100	.....	....	410	Ap 82 20	5 50	.....	6.50	.....	.....	.....	.....	.....	.67	.....	.....	.....
Findley, Ga.	200	1	*	....	*	My 79 4	.....	.....	.20	.....	.19	.....	.....	.....	.....	.....	.....	.....
Freeland, Co.	200	25	*	....	50	Ny 80 4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Glass-Pend. Co.	250	20	*	....	25	My 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gold Stripe, Ca.	150	10	*	....	76	Jy 81 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.33	.30
G'ld & Curry, Ne.	108	100	3308	Ja 82 50	3826	Oc 70 810	.....	.....	.....	.....	.....	.....	.....	.....	3.00	.....	.....	.....
Grand Prize, Ne.	100	100	340	Oc 81 25	450	Se 80 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Great Eastern, Dk	300	1	*	....	16	Jy 81 01	.08	.....	.08	.....	.....	.....	.....	.....	.07	.....	.....	.....
Gr. Mountain, Ca.	125	10	*	....	212	No 81 7½	2.10	1.95	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hale & Nor., Ne.	112	100	3838	De 81 75	1598	Ap 71 ½ 01	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hibernia, Co.	300	25	*	....	180	Jy 81 10	.13	.12	.14	.13	.15	.13	.15	.13	.16	.15	.16	.14
Homestake, Dk.	100	100	200	Ap 78 1 00	1330	Ap 82 40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18.00	.....
Horn-Silver, Ut.	400	25	*	....	1100	My 82 75	.....	.....	12.50	12.00	12.00	11.50	.....	.....	11.38	11.25	11.18	.....
Hukill, Co.	200	5	*	....	210	De 78 10	.....	.....	.2	.....	.62	.....	.....	.....	.....	.....	.....	.....
Ludes, Ne.	100	100	185	Fe 82 15	225	Se 79 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
In. Queen, Ne.	125	2	.....	Fe 80 15	332	Ap 82 05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Inyo, Ca.	100	5	*	....	45	Ap 82 05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iron Silver, Co.	500	20	*	....	600	Ma 81 20	2.20	.....	.....	.....	2.20	2.15	2.20	.....	2.20	.....	2.20	2.13
Jocuistita, Mex.	100	100	.....	....	200	Fe 82 1 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
La Plata, Co.	200	10	*	....	510	My 82 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leadville C., Co.	400	10	*	....	190	Ap 82 05	.....	.....	.....	.....	.....	.....	.75	.....	.....	.....	.73	.71
Leeds, Ut.	60	100	60	Fe 82 30	78	Oc 78 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Little Chief, Co.	200	50	*	....	700	Au 80 50	.94	.90	.90	.88	.95	.80	.89	.87	.....	.....	.90	.89
Little Pitts., Co.	200	100	*	....	1350	Mr 80 50	.....	.....	2.5	.....	2.00	.....	.....	.....	2.05	2.00	2.00	1.50
Martin White, Ne	100	100	900	Ja 82 25	90	Jy 79 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Moose, Co.	200	10	4	....	550	Mr 78 25	1.00	.....	.....	.....	1.30	1.15	1.35	1.25	1.40	1.30	2.05	1.35
Navajo, Ne.	100	100	220	Mr 82 20	25	Mr 81 25	1.00	.90	.92	.....	1.00	.98	1.00	.....	1.10	1.00	1.10	1.00
N. Y. & Colo., Col.	50	20	*	....	25	Jy 79 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N'h'n Belle, Ne.	50	100	.....	....	2188	Ap 82 50	.....	.....	7.75	.....	8.00	.....	.....	.....	.....	.....	8.00	.....
N. Belle Isle, Ne.	100	100	25	Fe 80 15	30	Au 81 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ontario, Ut.	150	100	.....	....	4250	Ap 82 50	.....	.....	35¼	.....	35¼	35.00	.....	.....	.....	.....	.....	.....
Ophir, Ne.	100	100	3192	Mr 82 1 00	1603	Ja 81 1 00	4.38	.....	.....	.....	.....	.....	.....	.....	4.25	.....	.....	.....
Osceola, Mich.	50	25	.....	....	610	Oc 81 1 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Plymouth, Ca.	100	10	*	....	151	Jy 79 8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quicks. Pref., Ca.	43	100	.....	....	390	Au 81 9 25	.....	.....	.....	.....	.....	.....	.....	.....	.57	.56½	.....	.....
" Com., Ca.	57	100	.....	....	128	Au 81 2 25	12¾	.....	12⅞	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quincy, Mich.	40	25	.....	....	3030	Fe 82 8 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rising Sun, Ca.	150	5	*	....	52	My 81 7½	.39	.35	.40	.....	.43	.40	.....	.....	.....	.....	.42	.....
Robinson C., Co.	200	50	*	....	575	No 81 50	3.20	2.90	3.15	2.90	3.15	2.75	2.80	2.45	2.65	2.50	2.55	2.25
Robt. E. Lee, Co.	500	500	.....	....	50	Jy 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Savage, Ne.	112	100	2552	Mr 82 50	4460	Ju 69 3 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sierra Nev., Ne.	100	100	4950	Mr 82 1 00	102	Ja 71 1 00	8.88	.....	8.88	.....	9.50	9.00	9.50	8.88	8.88	8.75	.....	.....
Silver King, Ar.	100	100	.....	....	600	Ap 82 25	17.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver King, Co.	500	2	.....	....	50	Au 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spr'g Valley, Ca.	200	1	*	....	50	Ja 81 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Standard, Ca.	100	100	50	Jy 78 1 00	3600	Ap 82 75	18½	.....	.....	.....	.....	.....	18⅜	18⅛	17¾	16	17	.....
Starr Grove, Ne.	200	10	*	....	16	Ju 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.88	.30	.....	.....
Stormont, Ut.	200	1	*	....	155	No 81 05	.90	.80	.9	.....	.85	.....	.80	.....	.....	.....	.....	.....
St. Joseph, Mo.	100	10	*	....	330	Ma 81 20	.....	.....	7.50	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tip Top, Ar.	100	100	120	Mr 80	100	No 81 20	.....	.....	.....	.....	.....	.....	4.25	4.00	.....	.....	.....	.....
Tombstone, Ar.	500	25	*	....	1350	Ap 82 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vizina, Ar.	200	25	.....	....	140	Mr 82 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Yel. Jacket, Ne.	120	100	4150	Oc 81 1 00	2184	Au 71 2 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

SALES.—Alice, 100; Amie Consolidated, 64,850; Argenta, 100; Bodie Consolidated, 1625; Bulwer, 125; California, 7788; Chrysolite, 20,250; Climax, 100; Consolidated Virginia, 13,035; Copper Knob, 18,100; Dunkin, 1200; Eureka, 465; Excelsior, 100; Father de Smet, 200; Findley, 200; Gold Stripe, 600; Gould & Curry, 100; Great Eastern, 2000; Green Mountain, 1600; Hibernia, 10,900; Homestake, 100; Horn-Silver, 1661; Hukill, 200; Iron Silver, 2000; Leadville, 500; Little Chief, 6800; Little Pittsburg, 770; Moose, 19,270; Navajo, 9700; Northern Belle, 135; Ontario, 160; Ophir, 170; Quicksilver, preferred, 400; Common, 200; Rising Sun, 2100; Robinson Consolidated, 306,054; Sierra Nevada, 1590; Silver King, 160; Standard, 1090; Starr Grove, 600; Stormont, 2900; St. Joseph Lead, 100; Tip-Top, 500. Dividend shares sold, 500,538.

$9¼@$8¾. Union Consolidated sold at $13⅛@$15 @$13¼. Best & Belcher was quiet and steady, selling at $6¼@$6⅝@$6½. Sutro Tunnel had a fair business, but was rather weak. It sold from 57@ 63c., closing at 56c.

The Tuscarora stocks were very quiet, Navajo recording sales of 9700 shares at 90c.@$1.10.

In the miscellaneous list, Moose showed considerable activity to-day at very strong prices; the sales for the week amounted to 19,270 shares at $1@$2.05, closing at $1.70. Robinson Consolidated continues to be one of the "interesting" features of the market, the sales for the week reaching the aggregate of 306,054 shares. The price of the stock has been with the "ups and downs" of the market, commencing at $3.20, selling to $2.45, and closing to-day at $2.30. There is nothing of special importance from the mine, so far as we can learn, with perhaps the exception that work on the 1100-foot level has been contracted for at $5 per foot, and that good progress is making on the incline and shaft. South Pacific, another "interesting feature" of the market, has been very weak, selling from $1.30@74c., closing at 75c. The State Line stocks have been active and weak, Nos. 1 and 4 at 17@12c., and Nos. 2 and 3 at 57@70@55c., closing at 67c.

The Copper Prince Mining Company, of Nova Scotia, organized under the laws of the State of New York, with a capital of $1,000,000, is offering a limited amount of treasury stock.

DIVIDENDS.

The Black Bear Mining Company, of California, has declared a dividend (No. 81) of 30 cents per share, or $9,000, payable April 17th.

The Consolidated Gold Mining Company, of Georgia, has declared a dividend (No. 12) of 4 cents per share, or $4000, payable April 18th.

The Eureka Consolidated Mining Company, of Nevada, has declared a dividend (No. 72) of 50 cents per share, payable April 27th, at the office of Laidlaw & Co., No. 14 Wall street. Transfer-books will close on April 18th.

The Evening Star Mining Company, of Colorado, has declared a dividend (No. 42) of 5 per cent on the capital stock; also, dividend No. 43 of the same amount, making a total of 10 per cent, payable April 28th. Transfer-books close on the 25th inst.

The Father de Smet Consolidated Gold Mining Company, of Dakota, has declared dividend No. 18 of 20 cents per share, payable at the office of Laidlaw & Co., No. 14 Wall street, May 1st. Transfer-books will close on April 22d.

The Hecla Consolidated Mining Company, of Montana, has declared a dividend (No. 10) of 50 cents per share, or $15,000; total amount to date, $150,000.

The Horn-Silver Mining Company, of Utah, has declared a dividend (No. 5) of 75 cents per share, or $300,000, payable May 15th; total amount to date, $1,100,000. Transfer-books close May 6th.

The Idaho Mining Company (Grass Valley), of California, has declared a dividend of $7.50 per share.

The La Plata Mining and Smelting Company, of Colorado, has declared a dividend (No. 32) of 7½ cents per share, payable May 1st. Also, an extra dividend of 2½ cents per share. Transfer-books will close April 22d and reopen May 2d.

The Renfrew Consolidated Mining Company, of Nova Scotia, has declared a dividend (No. 4) of 2 cents per share, payable April 20th.

REVIEW OF THE SAN FRANCISCO MARKET.

So far as reported, there are no violent changes in San Francisco quotations during the past week. Mail advices, however, report the state of the market as not very encouraging. The north end stocks are bolstered up by flattering reports from the mines, and they in a measure strengthen the whole market. There is a growing distrust felt, however, in many of the old stocks, that is gradually undermining the market; and while there is an appearance of strength, it is but temporary. A specimen of this lack of confidence is shown in the fact that on the last sale day of California, 47,000 shares of stock were relinquished by stockholders who refused to pay their assessments, and at a recent sale of Belcher 30,000 were forfeited in like manner. The call for funds to pay for draining the Yellow Jacket and other mines will shortly be made, and this will tend to lower prices.

Recent assessments are as follows:

Name of Company.	Levied.	Delinquent.	Sale day.	Amount per share.
Best & Belcher	Apr. 5	May 6	June 2	$0.50
Cal. Vig. Powder	Apr. 5	May 6	May 29	1.00
Caledonia (B. H.)	Apr. 5	May 6	June 15	.25
Holmes	Apr. 4	May 5	May 29	10
Pinal Con	Apr. 3	May 4	May 29	.30
Safety Nitro Co	Apr. 6	May 7	May 31	1.00
Tower Con	Apr. 7	.....	June 1	.10

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY.	CLOSING QUOTATIONS. April 14.	April 15.	April 17.	April 18.	April 19.	April 20.
Alpha	19-32	½	.....	.....	21-32	1⅛
Alta	3⅛	3⅛	.....	.....	3	2¾
Bechtel	.....	.....	.....	.....	.....	.....
Belcher	11-32	½	.....	.....	.....	½
Best & Belcher	6⅛	6¼	.....	.....	6⅜	6⅛
Bodie	5⅞	6	.....	.....	5½	5¼
Bullion	.....	¼	.....	.....	¼	¼
Bulwer	2⅛	2⅛	.....	.....	.....	.....
California	5-32	3-32	.....	.....	5-32	5-32
Challar	1⅛	1	.....	.....	1	1
Con. Virginia	11-16	11-16	.....	.....	13-16	11-16
Crown Point	19-32	19-32	.....	.....	11-16	21-32
Eureka Con	22	22½	.....	.....	22	22
Exchequer	5-16	¼	.....	.....	5-16	5-16
Gould & Curry	3⅛	2⅛	.....	.....	3¼	3
Hale & Norcross	1¾	1¾	.....	.....	2	1⅞
Manhattan	1½	.....	.....	.....	1½	.....
Martin White	.....	.....	.....	.....	4¼	4¼
Mexican	8	8	.....	.....	8½	8⅜
Mono	1¾	1¾	.....	.....	1⅞	1⅜
Mount Diablo	4½	.....	.....	.....	4½	4¼
Navajo	1	.....	.....	.....	1⅛	1⅛
Northern Belle	8	7⅜	.....	.....	7⅝	7¾
Noonday	1⅛	1⅛	.....	.....	1	1
Ophir	4¼	4½	.....	.....	4⅝	4½
Oro	11-32	11-32	.....	.....	11-32	11 32
Overman	5-16	.....	.....	.....	5-16	¼
Potosi	27-32	27-32	.....	.....	15-16	29-32
Savage	2	2	.....	.....	2⅜	2⅛
Scorpion	15-16	29 32	.....	.....	1	29-32
Sierra Nev	7⅝	7⅝	.....	.....	8	7⅝
Silver King	17	.....	.....	.....	.....	17
Tip Top	4	.....	.....	.....	.....	.....
Union Con	12¾	12½	.....	.....	13¼	12¾
Wales Con	9-16	.....	.....	.....	9-16	.....
Yellow Jacket	1	1⅛	.....	.....	1	1
.....	.....	.....	.....	.....	.....	.....

Copper and Silver Stocks.

Reported by C. H. Smith, 15 Congress street, Boston, Stock Broker and Member of the Boston Mining and Stock Exchanges.

BOSTON, April 20.

The market for mining stocks seems to have lapsed into a state of chronic dullness, from which it will need some powerful stimulus to arouse it. The copper stocks have maintained a fair degree of firmness as to prices, but there is no activity, and orders from customers to buy stocks are few and far between; in fact, it is almost wholly a broker's market, and outside of a few investment stocks, there are no absolute sales. The large sale of ingot copper by the syndicate, some 20,000,000 lbs. at 18c., would seem to indicate that there is not much danger of its going below that figure during the ensuing six months, and in all probability higher prices will be obtained, in which case the stocks of the producing mines ought to sell at a liberal advance over present prices. In review of the week, we have to note sales of Calumet & Hecla at $230, ex dividend, $5, a decline of $5 over closing sale of last week; later, it advanced to $233, and was in fair demand at same price bid. Quincy has been very steady at $46@$46¼, with sales of small lots at $46¼@$46¾; but it was offered today at $46. Franklin declined from $11½@$10¾. At the annual meeting yesterday, the report for the year was considered very favorable, and the stock was in demand to-day at $11 bid, with none offered under $12. Pewabic was dull and heavy at $11. Atlantic was steady at $14¼, and Osceola declined from $34@$33½. We note sales of Phœnix at $2⅛; Allouez at $2. Huron advanced from

$1⅛@$1¼, closing at $1⅛ bid. Hungarian sold at 25c., and Aztec at 30c.

In silver stocks, Bonanza advanced from $4@$4⅝; Sullivan, from $1⅝@$1¾. Catalpa sold at 45c.; Crescent at 30c. Silver Islet declined from $18@$17½. San Pedro was quite active, and advanced from 50@62½c.; but in the later dealings, fell off to 50c. again.

At the Boston Mining and Stock Exchange, the principal feature was Deer Isle, which advanced from 17@23c. The annual meeting takes place next month, and there are two or three parties seeking control of the property, and they are the buyers of all the floating stock in the market. Milton has further declined to 12c., assessment (10c.) paid, which leaves but a small margin for the old stock. Empire is neglected, and shows a decline from 30@25c. Massachusetts & New Mexico was dull at 19@21c.

3 P.M.—At the afternoon Boards, there was but little doing, and prices not materially changed. Bonanza declined to $4⅜. Crescent sold at 30c. Osceola sold at $32, and Quincy at $46. Closing prices are: Atlantic, $13½ bid, $14½ asked; Calumet, $230 bid, $235 asked; Franklin, $11 bid, $12 asked; Pewabic, $11 bid, $11¾ asked; Silver Islet, $17½ bid; Sullivan, $1¼ bid, $1⅝ asked; and Brunswick Antimony, $10 bid, $14 asked.

BULLION MARKET.

NEW YORK, Friday Evening, April 21.

There is no change worthy of note in the silver market abroad or here, and it may be regarded as quiet at the figures given in the annexed table.

DATE.	London Pence.	N. Y. Cents.	DATE.	London Pence.	N. Y. Cents.
April 15....	52⅛	114¼	April 19....	52⅛	114¼
April 17....	52⅛	114¼	April 20....	52⅛	114¼
April 18....	52⅛	114¼	April 21....	52⅛	114¼

BULLION PRODUCTION.

MINES.	States.	For the week.	Month of April.	Year from Jan. 1st, 1882.
*Albion, G. S.	Nev.	.....	.....	$7,168
*Alice, G. S.	Mont.	.....	.....	158,344
Alta-Montana, G.	"	12,600	12,600	99,814
Barbee & Walker, S.	Utah	1,282	3,720	30,300
Bodie, G.	Cal	10,400	19,140	114,635
*Boston & Montana	Mont.	.....	.....	63,127
Caledonia, G.	Dak	.....	.....	79,236
*Christy, S.	Utah	.....	.....	23,420
*†Chrysolite, S.	Colo	.....	.....	119,390
*Contention, G. S.	Ariz	.....	.....	399,316
Crismon-Mammoth, G.	Utah	2,360	3,188	14,574
*Custer, G. S.	Idaho	.....	.....	206,068
*Deadwood-Terra, G.	Dak	.....	.....	118,876
Eureka Con., G. S. L.	Nev	18,370	59,130	297,097
Father de Smet	Dak	.....	.....	94,334
Girard	Ariz	.....	.....	56,200
Grand Central	"	.....	.....	325,400
Head Center, S.	"	.....	.....	14,860
*Homestake, G.	Dak	.....	.....	196,160
Horn-Silver, S. L.	Utah	82,500	125,000	977,610
*Hope, G.	Mont.	.....	.....	37,049
Idaho, G.	Cal	.....	.....	167,000
*Indian Queen, S.	Nev.	.....	.....	18,153
Inyo Cons., G.	Cal	.....	.....	77,000
*Jocuistita, S.	Mex	.....	.....	‡51,923
*†Leeds, S.	Utah	.....	.....	10,672
Manhattan, S.	Nev	.....	.....	64,300
Mount Diablo, S.	"	15,000	15,000	86,975
Noonday, G.	Cal	2,880	9,630	34,840
Northern Belle, S.	Nev	14,000	29,200	218,207
North Noonday, G.	"	2,400	10,220	37,632
*Ontario, S. L.	Utah	.....	44,462	‡689,577
Ophir, G. S.	Nev	.....	10,050	22,050
Pascoe, S.	Utah	.....	.....	4,575
*Silver Bow, G. S.	Mont	.....	.....	40,659
Silver King, S.	Ariz	.....	.....	74,000
Standard, G.	Cal	52,500	78,250	296,237
Star, G.	Nev	.....	1,650	19,150
Stormont, S.	Utah	7,075	7,075	52,700
Syndicate, G.	Cal	.....	.....	8,000
Tintic M. and M. Co.	Utah	.....	.....	20,485
*Tip Top, S.	Ariz	.....	.....	82,936
*Tombstone, G. S.	"	.....	.....	‡399,696
Vizina, S.	"	.....	.....	136,000
Total amount of shipments to date				$6,044,345

* Official. † Net. *G. Gold. S. Silver. L. Lead.* ‡ Assay value.

Bullion Receipts at New York.—The bullion received from the mines at the various offices in this city during the week ended April 21st, as compiled from various sources, amounted to $216,000, as against $230,000 reported for the previous week. The receipts from January 1st, 1882, to date, are $4,641,795.89.

Exports and Imports of Gold and Silver at New York.

Exports.

Week ended April 15th	$503,000
Corresponding week last year	334,000
Since January 1st, 1882	14,490,253
Corresponding period last year	3,740,588

Imports.

Week ended April 15th	$6,356
Corresponding week last year	5,679,797
Since January 1st, 1882	1,116,967
Corresponding period last year	24,139,581

Foreign Bank Statements.—The dispatch that usually reports the weekly bank statement of the Bank of England was not at hand at the time of writing. The Bank of England, April 20th, gained £50,000 bullion on balance. The weekly statement of the Bank of France shows gains of specie consisting of 7,090,500 francs gold, and 3,825,000 silver.

METALS.

NEW YORK, Friday Evening, April 21.

The only features of the week are the sale of a large lot of copper for future delivery, and a further decline in tin.

NON-DIVIDEND PAYING MINES.

NAME AND LOCATION OF COMPANY.		NUMBER OF SHARES.	Par.	ASSESSMENTS. Total levied to date.	ASSESSMENTS. Date and amount of last.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE. April 15. H.	April 15. L.	April 17. H.	April 17. L.	April 18. H.	April 18. L.	April 19. H.	April 19. L.	April 20. H.	April 20. L.	April 21. H.	April 21. L.
Advan'e M.&M.Co	....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Albion, S. L.	Nev.	150,000	100	330	Nov. 81 30	2.50	2.45	.....	.....	.....	.....	2.40	.....	.....	.....	.....	.....
Allouez	Mich	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Alpha	....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Alta	Nev.	100,800	100	1,584,000	Dec. 81 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Alta-Montana, G.	Mon.	500 000	10	*	.....	1.00	.....	1.00	.....	1.00	.....	1.00	.....	1.00	.....	1.00	.....
Am. Flag, S.	Colo	125,000	10	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Atlantic Copper	....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bald Mountain, G.	Colo	1,000,000	10	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barcelona, G.	Nev	200,000	25	*	.....	14c	13c	14c	.....	14c	12c	13c	12c	13c	.....	14c	12c
Battle Creek	Dak.	200,000	25	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bear Creek	Colo	300.000	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Beauce G'd M.M.C	....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bechtel Con., G.	Cal.	100,000	100	162,750	Dec. 81 25	30c	.....	.....	.....	.....	.....	.....	.....	.....	.....	3c	.....
Best & B'cher, G. S	Nev.	100,800	100	1,053,790	Jan. 82 50	6.25	.....	6.63	6.50	.....	.....	6.50	.....	.....	.....	17c	15c
Big Pittsburg, S. L	Colo	200,000	100	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Black Jack, G.	Cal.	100,000	2½	*	.....	.....	.....	.....	.....	75c	.....	79c	75c	.....	.....	80c	.....
Bonanza Chief	Mon	1,000,000	1	*	.....	4c	.....	.....	.....	4c	.....	.....	.....	.....	.....	4c	.....
Bondholder	Colo	200,000	2½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston Con., G.	Cal.	100,000	100	50,000	Sept. 81 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boulder Con., S.	Colo	200,000	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bradshaw, S.	Ariz	225,000	10	.....	.....	21c	17c	20c	16c	17c	15c	.....	.....	15c	.....	17c	15c
Buckeye	Colo	100,000	5	*	.....	5c	.....	.....	.....	6c	5c	.....	.....	.....	.....	.....	.....
Bull-Domingo, S. L	Colo	200,000	50	*	.....	.....	.....	.....	.....	.....	.....	12c	.....	.....	.....	12c	.....
Bullion, G. S.	Nev.	100,000	100	3,892,000	Jan. 82 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bye and Bye	Ariz	100,000	10	*	.....	.....	.....	.....	.....	5c	.....	10c	.....	6c	5c	.....	.....
Calaveras, G.	Cal.	500,000	1	*	.....	.....	.....	.....	.....	.....	.....	50c	.....	.....	.....	.....	.....
C'lav'r's W.&M.Co	Cal.	.....	..	.....	.....	.....	.....	47c	46c	.....	.....	.....	.....	.....	.....	.....	.....
Cal., B. H., G.	Dak.	100,000	100	400,000	Mar. 81 25	.....	.....	.....	.....	50c	.....	.....	.....	.....	.....	.....	.....
Carbonate Hill, S. L	Colo	400,000	10	.....	.....	45c	.....	45c	43c	47c	42c	.....	.....	44c	42c	46c	45c
Catskill, S.	Nev.	300,000	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Central Ariz'na, S.	Ariz	100.000	100	.....	.....	90c	.....	.....	.....	95c	88c	90c	.....	80c	74c	75c	.....
Chapparal	Cal.	.....	..	.....	.....	.....	.....	5c	.....	7c	5c	9c	5c	5c	4c	5c	.....
Cherokee, G.	Cal.	150,000	10	.....	.....	30c	.....	.....	.....	.....	.....	.....	.....	.....	.....	32c	25c
Cheyenne Con., G	Dak.	300,000	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clarence	Can.	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado Cent'l, S	Colo	300,000	10	.....	.....	78c	75c	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col'mb'a Con., G. S	Nev.	100,000	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cons. Imp'r'l, G. S	Nev.	500,000	100	1,425,000	Jan. 82 10	.....	.....	5c	.....	.....	.....	4c	.....	.....	.....	.....	.....
Con. Pacific, G.	Cal.	60,000	100	114,000	Jly 81 40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Con. Pay Rock, S.	Colo	250,000	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30c	.....	.....	.....
Crescent, S. L.	Colo	300,000	10	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crowell, G.	N. C.	50 ,000	1	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dahlonega, G.	Ga.	250,000	1	*	.....	.....	.....	.....	.....	5c	.....	.....	.....	.....	.....	.....	.....
Dardanelles, G.	Cal.	100,000	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Decatur	....	.....	..	.....	.....	1.35	.....	1.35	..	1.35	.....	1.35	.....	1 40	1.35	1.40	1.35
Dunderberg, S.	Colo	150,000	10	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	72c	.....	.....	.....
Durango, G.	Dak.	500,000	1	*	.....	.....	.....	48c	47c	50c	.....	.....	.....	42c	40c	44c	41c
Empire, S.	Ut'h	100,000	100	.....	.....	1.75	.....	1.75	.....	.....	.....	1 65	1.50	.....	.....	.....	.....
Enterprise	Colo	.....	..	.....	.....	86c	83c	86c	84c	86c	82c	87c	82c	.....	.....	.....	.....
Exchequer	Nev.	100,000	100	655,000	Jan. 82 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Globe Copper	Ariz.	.....	..	.....	.....	.....	.....	25c	23c	25c	23c	.....	.....	.....	.....	29c	23c
Glynn Dale Con. G	Cal.	100,000	100	75,000	Jan. 81 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gold Placer, G.	Colo	200,000	25	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Goodshaw, G.	Cal.	100,000	100	145,000	Feb. 81 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Granville, G.	N. C.	800,000	1	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55c	45c
Harshaw, S.	Ariz	100,000	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Head Center, S.	Ariz	100,000	100	55,000	May 81 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hortense, S.	Colo	200,000	10	.....	.....	.....	.....	28c	.....	28c	.....	28c	.....	25c	.....	.....	.....
Index	Cal.	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Julia, G. S.	Nev.	110,000	100	.....	Jan. 82 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kossuth, G. S.	Nev.	108,000	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lacrosse, G.	Colo	100,000	10	*	.....	23c	21c	25c	.....	.....	.....	.....	.....	.....	.....	.....	.....
Legal Tender, S. L	Colo	200,000	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leviathan, S.	Nev	100,000	100	350,000	Mar. 81 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lucerne, S.	Colo	500,000	10	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Malachite	Nev.	200,000	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mariposa Pref., G	Cal.	50,000	100	1,687,500	Dec. 81 ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" Com., G	Cal.	100,000	100	1,950,000	Feb. 82 ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May Belle, G.	Cal.	100,000	100	126,000	Feb. 82 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mayflower, S.	Colo	100,000	100	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mexican, G. S.	Nev.	100,800	100	1,600,800	Sept. 81 $1	8.25	.....	8.38	.....	.....	.....	8.75	8.25	.....	.....	.....	.....
Michoacan Synd.	Mex.	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mineral Creek, S.	Ariz	200,000	10	*	.....	.....	.....	.....	.....	.....	.....	2c	.....	.....	.....	2c	1c
Miner Boy, G. S. L.	Colo	500,000	10	*	.....	8c	7c	8c	7c	7c	.....	7c	.....	8c	7c	8c	.....
Miller	Nev.	200,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mono, G.	Cal.	50,000	100	400,000	Dec. 81 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Moose Silver, S.	Colo	300,000	10	.....	.....	35c	30c	.....	.....	30c	.....	.....	.....	30c	.....	20c	.....
Nevada Syndi.	....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Standard, G	Cal.	100,000	100	.....	Nov. 81 10	.....	.....	20c	.....	18c	.....	.....	.....	.....	.....	.....	.....
North State	N. C.	400,000	25	.....	.....	12c	10c	11c	10c	12c	10c	11c	10c	11c	8c	9c	7c
N. Horn-Silv'r, S. L	Utah	400,000	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Noonday	Cal.	60,000	100	.....	Jne 81 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Old Dominion, C.	Ariz	200,000	10	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oriental	Nev.	200,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ori'nt'l & Miller, S.	Nev.	400,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Overman, G. S.	Nev.	115,200	100	3,458,300	Jan. 82 50	23c	22c	23c	22c	.....	.....	23c	.....	20c	.....	23c	20c
Potosi	....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quartz Creek	....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rappahannock, G	Va.	250,000	1	*	.....	.....	.....	.....	.....	.....	.....	19c	15c	19c	15c	19c	18c
Red Elephant, S.	Colo	500,000	10	*	.....	28c	.....	.....	.....	.....	.....	.....	.....	.....	.....	29c	.....
Sand Placer, G. S. L.	N. M	400,000	25	.....	.....	13c	.....	.....	.....	14c	12c	.....	.....	.....	.....	.....	.....
Silver Cliff, S.	Colo	200,000	50	*	.....	1.65	1.05	1.20	1.10	1.05	1.00	1.15	.....	1.20	1.15	1.20	.....
Silver Islet	Can.	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver Nugget, S.	Ariz	200,000	10	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silv'r N, n'w stk, S	Ariz	250,000	10	.....	.....	7c	.....	7c	.....	7c	6c	.....	.....	7c	6c	7c	.....
Sonora Con.	Mex.	.....	..	.....	.....	.....	.....	1.00	.....	1.00	11c	.....	.....	.....	.....	6c	.....
South Bodie, G.	Cal.	100,000	100	85,000	Nov. 80 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Bulwer, G.	Cal.	100,000	100	195,000	May 81 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Hite	Cal.	100,000	5	.....	Jan. 82 10	.....	.....	.....	.....	.....	.....	14c	.....	.....	.....	14c	.....
South Pacific	Cal.	.....	1	.....	.....	1.30	1.05	1.25	1.00	1.10	1.00	1.05	70c	85c	74c	83c	74c
State Line No. 1, S	Nev.	200,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" No. 2, S.	Nev.	200,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" No. 3, S.	Nev.	200,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" No. 4, S.	Nev.	200,000	25	.....	.....	.....	.....	.....	.....	15c	.....	.....	.....	16c	.....	14c	.....
" Nos. 1 & 4, S	Nev.	.....	..	.....	.....	15c	.....	17c	15c	16c	.....	.....	.....	14c	13c	12c	.....
" Nos. 2 & 3, S	Nev.	.....	..	.....	.....	66c	60c	68c	63c	70c	66c	70c	55c	66c	55c	67c	64c
Sutro Tunnel	Nev.	2,000,000	10	*	.....	62c	60c	62c	57c	63c	58c	63c	55c	59c	55c	58c	55c
Tabor Mine	Colo	250,000	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Taylor Plumas	....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	14c	.....	.....	.....	15c	.....
Tioga, G.	Cal.	100,000	100	260,000	Jan. 82 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tuscarora, S.	Nev.	100,000	100	95,000	Apr. 81 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unadilla, S.	Colo	500,000	1	*	.....	12c	.....	12c	.....	12c	.....	.....	.....	.....	.....	12c	.....
Union Cons, G. S.	Nev.	100,000	100	1,160,000	Jly 81 $1	14.00	.....	13.50	.....	15.00	.....	13.88	.....	13.88	13.50	.....	.....
Utah	Nev.	20,800	100	1,210,000	Jan. 82 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vandewater, S.	Nev.	200,000	10	*	.....	.....	.....	.....	.....	.....	.....	30c	27c	30c	27c	27c	.....
Washington, S.	Ariz.	200,000	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Willshire, G.	Cal.	50,000	1	*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

SALES.—Albion, 400; Alta-Montana, 2100; Barcelona, 9800; Bechtel Consolidated, 300; Best & Belcher, 925; Big Pittsburg, 750; Bonanza Chief, 2700; Boulder Consolidated, 600; Bradshaw, 10,000; Buckeye, 5000; Bull-Domingo, 300; Bye and Bye, 5000; Calaveras, 500; Calaveras W. & M. Co., 700; Cal., B. H., 200; Carbonate Hill, 5600; Central Arizona, 1900; Chapparal, 63,500; Cherokee, 2400; Clarence, 1500; Consolidated Imperial, 1100; Consolidated Pay Rock, 72; Dahlonega, 1000; Decatur, 4600; Dunderberg, 1000; Durango, 5300; Empire, 1500; Enterprise, 6800; Globe Copper, 3700; Goodshaw, 1200; Hortense, 1700; Lacrosse, 500; Mexican, 310; Mineral Creek, 21,100; Miner Boy, 11,600; Moose Silver, 1700; North Standard, 500; North State, 35,900; Oriental & Miller, 4200; Quartz Creek, 4100; Rappahannock, 400; Red Elephant, 1700; Silver Cliff, 6500; Silver Nugget, new stock, 11,000; Sonora Consolidated, 1800; South Hite, new, 900; South Pacific, 391,050; State Line, No. 4, 600; Nos. 1 and 4, 3700; Nos. 2 and 3, 171,100; Sutro Tunnel, 31,750; Taylor-Plumas, 300; Unadilla, 3500; Union Consolidated, 420; Vandewater, 7000; Retort M. & M. Co., 1400. Non-Dividend shares sold, 859,677. Total shares sold at all the Exchanges, 1,360,215.

Copper.—It appears that the long suspense has ceased, and that a part of the consumers of copper have contracted for supplies to extend over the months of May, June, July, August, and September. The quantity is variously given, and probably is not absolutely fixed. We are assured that it is not far from 20,000,000 pounds, the price being 18c. There can be no doubt that, for the next month or two, this price will be quite steadily maintained, and for that period no great changes need be looked forward to. The price is, all things considered, a fair one, and there may be no difficulty in

PHILADELPHIA MINING STOCKS.

	April 13.		April 14.		April 15.		April 17.		April 18.		April 19.		Sales.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Algonquin													
Am. Con	.03												1,000
Argent	.32½		.39				.30		.30		.30	.27½	5,000
Atlanta													
Aztec	.07		.07	.06	.07		.07		.07		.07	.06	17,500
Battle Mt			.04										3,000
Black Sulphuret													
Buena	.15	.14	.15	.14	.16	.15	.17	.15					26,300
Bunker Hill													
Calista											.40		500
Cincinnati	.25		.24		.25	.24	.27½	.25					8,500
Compromise	.35		.35				.40	.37½	.40		.40		5,400
Con. Virginia													
Crown													
Dauntless													
Del Monte													
Den. City Con	.45	.42½	.42½				.42½				.42½		2,700
Eureka Con													
Fairview Con											.03		1,000
Flora Morrison													
Girard	1.72½	1.52½	1.67½	1.55	1.62½	1.57½	1.72½	1.55	1.60	1.50	1.55	1.47½	73,500
Golconda													
Golden Age Group													
Gov. Group	.30								.32½		.35	.32½	10,700
Grand Trunk													
Grand Union	.10	.09	.10		.11	.10			.10	.09	.09	.08	14,000
Gun. Imp. Co	1.50	1.45	1.52½	1.47½	1.47½								1,100
Hancock	.02						.01		.01				3,000
Hibernia Con													
Homestake													
Iowa Gulch	.22	.21	.21		.21		.21		.21		.20		7,600
King Bullion													
Little Diamond											.16	.13	3,100
Little Maud									.10		.10		2,400
Long & Derry	.03		.03		.03		.03				.03		7,600
Magnolia	.23	.13			.14	.13	.18	.14	.17	.16			9,100
McCullough													
Monitor													
Montana													
Mt. Lincoln							.04		.04				1,400
Mt. Sheridan					.09								1,000
National													
Orion			.42½		.27½		.27½		.27½		.27½		1,200
Palmetto Ex													
Panther													
Pembina	1.05	.95	1.05	1.00	1.07½	1.02½	1.20	1.10	1.37½	1.10	1.40	1.27½	13,300
Penn Breck	.25		.25		.27½	.25	.27½	.25	.25				9,938
Permanent													
Pizarro									.03	.02			600
Pizarro Exten	.06		.05										3,500
Rara Avis	1.97½	1.87½	1.95		2.00		2.00	1.97½	1.95		2.02½		4,300
Rara Avis Ex			.14		.16	.15	.17	.16	.18	.16	.17		38,000
Rico Pioneer													
San Pedro			.07						.06		.06		6,500
Silver Cord			.80										700
Silver Plume	.04										.15	.04	7,000
South Hite													
State Line, Nos. 1 & 4													
State Line, Nos. 2 & 3													
Sultana													
Sutro Tunnel													
Tombstone	4.00		4.00	3.97½	4.00	3.90	3.95	3.50	3.80	3.50	3.65		6,213
Victor									.03				1,000

upholding it, if the demand is reasonably large. The market has, since these transactions, relapsed into quietude, and it is now tolerably firm at 18⅛c. for Lake, and 18c. for Baltimore and Arizona.

We may mention in this connection that the new Siemens refining-furnace of the Ansonia Brass and Copper Company was started this week. The copper was melted in three hours, and during the casting, which took one hour and a half, there was no change in the pitch. The furnace has a capacity of 11 tons per day.

In London, copper has receded to £63 per ton, as per cable advices.

From London, Messrs. James & Shakspeare report that the announcement on the 3d inst., that the Chili charters were 1200 tons for England (making the total for the first quarter 8368, against 7244 in 1881, 13,399 in 1880, and 11,282 in 1879) produced a good effect. The trade continued good on the 4th, but became more quiet on the 5th, business being at a standstill on the 6th. At the close, Chili Bars were quoted £64¼ sharp cash, and £65 three months, with Wallaroo Cake at £68@£70, and Best Selected at £70@£71.

Tin.—The week has been one of excitement in the London market, and consequently to a certain extent in our own also. In the beginning of the week, the market opened with £96 15s.@£97, and after three failures of weak operators, declined to £87 10s. It has since rapidly recovered, and yesterday evening reached £93 10s. @ £94, with indications that the troubles are over. Here 50 to 100 tons of tin sold at the close of last week at 23c., and since then a few weak holders have parted with 50 tons more at from 22½ down to 22c., which is the closing quotation.

According to Messrs. James & Shakspeare's daily reports, tin fluctuated considerably on the 3d, a state of affairs which continued on the 4th, 5th, and 6th inst., closing at 105⅛s. for prompt payment, and 105½s. for fourteen days.

The statistical returns of foreign tin in London and Holland show imports of 2322 tons for the first quarter, and the stocks on the 31st were 10,623 tons, the visible supply being carried to 14,623 tons, by about 4000 tons afloat.

Lead.—A jobbing trade only has been done, at figures varying between 4·95@5·05c. for common, and 5·05@5·10c. for refined.

Messrs. John Wahl & Co., of St. Louis, say by telegraph :

Market firm, with a fair local and shipping demand. Hard chemical is quoted 4·65@4·75c. ; and refined corroding, 4·70@4·75c. Eastern freights are unchanged.

Under date of the 19th, they send us the following :

There is a continued steady and healthy business ; while there is no actual rush, a good and fair demand prevails for both soft and hard lead. Stocks in the hands of hoders are limited, and all receipts are about sold. We quote Soft Missouri nominal at 4·70@4·75c., and Hard about 5c. less according to quality. Receipts for the past week foot up to 25,376 pigs against 21,252 pigs the previous week.

Spelter.—The dullness which has characterized this metal for some time still continues, and we quote 5¼@5⅝c. for both foreign and domestic. Sheet-zinc is unchanged at 7¾@8c.

Antimony.—The tone is a little weaker. Hallett's is quoted at 12½@12¾c., and Cookson's 14⅝@14¾c.

Quicksilver.—From the San Francisco *Commercial Herald* we have the following :

The spot stock is light, and the market inactive at 27¼c. Exports by rail during the month of February aggregate 547 flasks, of which 47 flasks were shipped from this city. The total exports by rail for the first two months of 1882 were 1087 flasks, of which 683 were shipped from San Francisco.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, April 21.

The danger of labor troubles in Pittsburg and other parts of Pennsylvania is apparently becoming far more real than it was thought that it might possibly become.

American Pig.—The only transaction of magnitude reported is the sale at Albany of 1000 tons of Olcott No. 2 X, at, it is said, $24. The market has been very quiet during the week, and as the outside lots, which have of ate been pressing on the market, are gradually disappearing, there is no pressure to sell, as the only ones now in a position to sell are some furnaces. It is stated that more than 10,000 tons of foreign Bessemer pig have been sold, to arrive, at $24, the spot quotation for this grade being of pig nominally $24½@$25. We learn of the sale of about 1000 tons of foreign spiegel, 10@12 per cent, at $29. We quote for American pig, Foundry No. 1 X., $25@$25.50 ; No. 2, $23½@$24 ; and Gray Forge, $22½@$23.

Scotch Pig.—During the week, the market has been weak and drooping. The moderate arrivals are selling, so that importers are not forced to put the iron into store. Freights are declining, a fact which may partially account for the weakness displayed. We quote : Coltness, $25½@$26 ; Gartsherrie, $24¾@$25 ; Glengarnock and Carnbroe, $24 ; and Eglinton, $22.50@$23.

Messrs. John E. Swan & Brothers, of Glasgow, under date of April 7th, report 107 furnaces in blast, as against 121 at the same time last year. The quantity of iron in Connal & Co.'s stores was 629,589 tons, a decrease of 230 tons for the week. The shipments show an increase of 23,968 tons, as compared with the shipments to the same date in 1881. The imports of Middlesbrough pig-iron for the same period show a decrease of 313 tons. The following were the quotations of the leading brands of No. 1 pig-iron : Gartsherrie, 58s. ; Coltness, 58s. ; Langloan, 58s. 6d. ; Summerlee, 57s. ; Carnbroe, 52s. ; Glengarnock, 51s. 6d. ; Eglinton, 48s. 6d. Middlesbrough pig-iron was quoted as follows, f. o. b. : No. 1 Foundry, 47s. ; No. 2, 45s. 6d. ; No. 3, 43s. 6d. ; No. 4, 43s. ; No. 4 Forge, 42s. 6d.

Rails.—Considerable sales of steel rails, probably aggregating from 35,000 to 40,000 tons, have been made at a reported price of $50 per ton at mill, and further transactions are pending. We quote nominally, $50@$52 at mill. In iron rails, no business has been done, and we repeat former nominal quotations of $46@$48 at mill for American, and $44@$46 for English in store.

Old Rails.—We have not heard of any transactions, the market being very dull and in buyers' favor. We quote nominally, $27@$28 for Ts, and $28½@$29 for Double Heads.

Scrap.—Nominally, quotations remain $28.50@$29 for No. 1, no business being done.

Philadelphia. April 21.

Within forty-eight hours, the iron market has shown some signs of improvement. The action of the Pittsburg puddlers in moving for an advance from June 1st, has awakened some apprehensions. If a strike took place, it would be general. Pig-iron would fal and finished iron advance. The trade is unprepared for any thing but a regular supply at stationary prices. A private cable to-day states that English and Scotch pig weakened one to two shillings, and that freights are down to eleven shillings and eleven-six.

With a downward tendency abroad and an upward tendency at home, increasing imports are probable, not taking account of strike probabilities. Quotations are steady, sales small. Buyers hold to the theory that production is in excess of consumption requirements, and they are very close in stocks. Lehigh Foundry is sold at $24@$24.50 at furnace ; $23@$23.50 for No. 2 ; and $20@$23 for Gray Forge.

The movement in Bessemer is confined to small lots. One or two large lots went at $24. For the present, but little business is probable, owing to the uncertainty of the demand for steel rails. Merchant bars are weaker, on account of some sharp competition. Quotations run from 2·6 to 2·8c., with 2·7c. covering most of the business entered. The uncertainty as to summer supply has brought in considerable inquiry within a day or two, and there is a probability that a sharp demand may be developed, in which event prices would regain their firmness.

The active movement in rails is maintained at $3.30 @$3.40. Structural shapes are under active inquiry, and prices are firm at 3·2c. for angles, 4c. for beams, and 4·2c. for tees and channels. In both structural shapes and plate iron, demand is held back until buyers feel assured nothing is to be lost by placing orders. Should an upward tendency be given to trade from any cause, a good deal of business would seek acceptance at present rates. Sheet is firm and active. Pipes were in better request this week. Steel is firm and the volume of business large. Mills are crowded with orders. Steel rails sold this week at $50 at mill. Quotations are held at $52@$54. Second-hand lots have the preference among small buyers, for [summer de-

livery. Iron rails are without quotation. Old rails are moving in small lots, between $28@$28.50. Scrap is dull at $30@$32 for No. 1; $28@$30 for medium; and $20 for cast scrap.

COAL TRADE REVIEW.

New York, Friday Evening, April 21.

Anthracite.

There is no material change since our last, and the general dullness continues unabated, although we are informed in various quarters that certain sizes are sought for in special markets. These points, probably, are dwelt upon in the absence of any other encouraging facts. Buyers do not show the least activity, and what little is done is for urgent requirements only, the opinion prevailing quite generally that prices will be lower still. The action of the companies in deciding unanimously upon a cessation of work on the 4th, 5th, and 6th, and on the 11th, 12th, and 13th, with a probability of stopping also on the 18th, 19th, and 20th and the 25th, 26th, and 27th of May, may, however, cause them to alter their views. If the contemplated restriction over the whole month of May is carried into effect—and there is every probability that it will be—the market will get into better shape, and a slight advance in June is not improbable. Freights are low, particularly to Boston and other Eastern points, and lake freights, too, are reasonable. Still vessels here are by no means numerous, and orders which might be filled at present rates can not be carried out on that account. It should not be forgotten, on the other hand, that in the West the stocks of coal are quite heavy and that in the East the demand is slack. As yet, we hear of no large contracts for future delivery.

The production of anthracite coal last week was 656,345 tons, as compared with 396,118 tons the previous week, and 408,448 tons the corresponding week of 1881. The total production from January 1st to April 15th was 6,610,348 tons, as against 6,721,875 tons for the like period of 1880, showing a decrease for the year of 111,527 tons.

Bituminous.

The threatened suspension in the Clearfield region has not been general, although a number of the miners have suspended work for at least a few days. Probably the majority of the men are still at work; but there is an uneasy feeling among them that may culminate in a general strike. There is nothing definite from the Cumberland region, though the opinion seems to prevail that a resumption of mining will take place at an early date.

The trade here is still in the condition in which it has been for some time past. A good deal of coal is selling at prices which vary very widely, some being disposed of as low as $4.60, while some shippers ask and claim to get $5. A fair quotation would be $4.70 @$4.90. The railroad has advanced freights on the line and through trade about 25 cents a ton, apparently determined to get the lion's share of what profits there may be in the present large business doing. The uneasiness among the hands of the iron furnaces and mills is a feature which is not a very encouraging one for the future.

STATISTICS OF COAL PRODUCTION.

Comparative statement of the production of anthracite coal for the week ended April 15th, and years from January 1st:

TONS OF 2240 LBS.	1882. Week.	1882. Year.	1881. Week.	1881. Year.
Wyoming Region.				
D. & H. Canal Co..	75,213	859,626	44,874	960,525
D. L. & W. RR. Co.	94,141	1,072,916	59,739	1,104,810
Penn. Coal Co.....	31,436	269,331	21,560	293,617
L. V. RR. Co.....	40,237	278,481	8,451	306,072
P. & N. Y. RR. Co..	5,331	49,734	2,181	17,047
C. RR. of N. J	48,529	589,795	41,841	631,989
Penna. Canal Co....	10,128	18,236	9,665	10,404
	305,315	3,138,119	188,311	3,324,454
Lehigh Region.				
L. V. RR. Co.....	117,799	1,134,766	67,903	1,097,163
C. RR. of N. J.....	45,411	499,204	32,550	494,892
S. H. & W. B. RR..	.....	11,273	.....	1,176
	163,210	1,635,243	100,453	1,593,231
Schuylkill Region.				
P. & R. RR. Co.....	166,156	1,551,170	101,758	1,521,542
Shamokin & Lykens Val.....	20,643	272,300	16,726	265,340
	186,799	1,823,470	118,484	1,786,882
Sullivan Region.				
St Line&Sul.RR.Co.	1,021	13,516	1,200	17,308
Total	656,345	6,610,348	408,448	6,721,875
Increase.....	247,897	.....	.....	.....
Decrease	.....	111,527	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Total same time in 1877.....	4,787,167 tons.
" " " " 1878.....	3,607,003 "
" " " " 1879.....	6,073,588 "
" " " " 1880.....	5,942,209 "

The Transportation of Coke over the Pennsylvania Railroad for the week ended April 1st, and year from Jan. 1st:

Tons of 2000 lbs.	Week.	Year.
Penn. RR. (Alleghany Region).....	2,236	27,959
West Penn. RR..	1,587	34,775
Southwest Penn. RR	37,800	475,980
Penn. & Westmoreland Region, Pa. RR	5,490	74,844
Pittsburg, Penn. RR	14,280	191,360
Show Shoe (Clearfield Region).....	254	6,522
Total	61,647	811,440

Belvidere-Delaware Railroad Report for the week ended April 15th:

	Week.	Year. 1882.	Year. 1881.
Coal for shipment at Coal Port (Trenton)	2,423	2,423	2,970
Coal for shipment at South Amboy	19,314	207,463	174,669
Coal for distribution..... ..	14,367	197,587	219,571
Coal for company's use	2,588	37,696	31,890

The decrease in shipments of Cumberland Coal over the Cumberland Branch and Cumberland & Pennsylvania railroads amounts to 58,519 tons, as compared with the corresponding period in 1881.

FREIGHTS.

Coastwise Freights.

Per ton of 2240 lbs.

depresenting the latest actual charters to April 14th, 1882.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnston, South Amboy, Hoboken, and Weehawken.
Alexandria.....	.75@.80	.80	.....
Allyn's Point....	.....	.....	.....
Annapolis.....	.....	.....	.....
Albany.....	.....	.....	.40@.45
Baltimore	.55§	.....	.....
Bangor.....	.....	.....	.95@1.00*
Bath, Me.....	1 25	1.50	1.15
Beverly	1 35	.....	1.15
Boston, Mass.....	1.25@1.40	1.50	1.00@1.10
Bristol.....	1.30@1.25	.....	.....
Bridgeport, Conn.	.....	1.30	.55
Brooklyn.....	.75§	.....	18§ 15H
Cambridge, Mass.	1.40‡	.....	1.05@1.10
Camoridgeport ..	1.45‡	.....	1.10
Charleston, S. C..	.90	.....	.....
Charlestown.....	1.35	.....	1.00@1.10
Chelsea.....	1.35	.....	1.00@1.10
City Point.....	.....	.....	.....
Com. Pt., Mass...	1.40	.....	.....
E. Boston.....	1.30	.....	1.00@1.10
East Cambridge.	1.40‡	.....	1.00@1.10
E.Gr'nwich,R. I.	1.30	.....	.....
Fall River.....	1.20@1.25	1.30	.85
Galveston.....	.....	.....	.....
Georgetown, D.C.	.75@.80	.....	.....
Gloucester	1.42½	.....	.....
Hartford	.....	.....	.90@.95
Hackensack.....	.....	.....	.25§
Hudson.....	.....	.....	.40@.45
Lynn	1.40	.....	1.25@1.30
Marblehead.....	1.40	.....	1.00@1.10
Medford	.....	.....	.....
Millville, N. J....	.75	.....	.....
Milton.....	.....	.....	.....
Newark, N. J.....	.....	.....	.25§
New Bedford	1.20@1.25	1.30	.90@.95
Newburyport	1.50	1.60	1.20
New Haven.....	.....	1.30	.50@.55
New London.....	.....	1.30	.65
Newbern.....	.....	.....	.....
Newport.....	1.25	.....	.80
New York.....	.75§	1.20	18§ 15H
Norfolk, Va	.65@.70	.80	.....
Norwich.....	.....	1.40	.65@.70
Norwalk, Conn ..	.....	1.40	.50@.55
Pawtucket.....	.....	1.50	.95¶
Philadelphia.....	.....	.....	.....
Portland.....	1.25@1.30	1.50	.95@1.00*
Portsmouth, Va..	.65@.70	.....	.....
Portsmouth, N.H.	1.50	1.50	1.25
Providence.....	1.20@1.25	1.30	.70@.80
Quincy Point.....	.....	.....	1.10
Richmond, Va...	.70	.90	.....
Rockland, Me....	.....	.....	1.15
Rockport	.....	.....	.....
Roxbury, Mass...	1.35‡	.....	.....
Saco.....	.....	.....	1.00@1.10
Sag Harbor.....	.....	.....	.85@.90
Salem, Mass.....	1.35@1.50	1.50	1.20
Saugus	.....	.....	1.35
Savannah.....	.....	.....	.....
Somerset.	1.20@1.25	.....	.70@.75
Staten Island....	.75§	.....	.18§
Trenton.....	.....	.....	.....
Troy.....	1.00§	.....	.45§
Wareham.....	.....	1.30	.....
Washington.....	.75@.80	.80	.....
Weymouth	.....	.....	1.10¶
Williamsbg, N.Y.	.75§	.....	18§ 15H
Wilmington, Del.	.....	.....	.....
Wilmington, N.C.	.....	.....	.....

* And discharging. † And discharging and towing. ‡3c. per bridge extra. § Alongside. ‖ And towing up and down. ¶ And towing. ** Below bridge. †† Towing and pilotage, $75. H Hoboken.

The Production of Bituminous Coal for the week ended April 1st was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons
Cumberland Region, Md.		
*Tons of 2240 lbs.....	4,952	459,954
Barclay Region, Pa.		
*Barclay RR., tons of 2240 lbs.	7,325	116,355
Broad Top Region, Pa.		
*Huntingdon & Broad Top RR.	5,206	70,499
East Broad Top.....	1,332	26,691
Clearfield Region, Pa.		
Snow Shoe.....	4,869	50,889
Tyrone and Clearfield..... . . .	66,870	664,382
Alleghany Region, Pa.		
Pennsylvania RR..	9,446	123,307
Pittsburg Region Pa.		
West Penn RR.....	8,745	88,921
Southwest Penn. RR...	1,410	11,015
Penn & Westmoreland gas-coal, Pa. RR.....	24,565	328,955
Pennsylvania RR..	15,140	163,891

* For the week ended April 15th.

Horsford's Acid Phosphate

In Nervous Exhaustion.

I have used Horsford's Acid Phosphate in nervous exhaustion, and in nervous disturbances connected with an overworked brain, and am satisfied that it is a remedy of great service in many forms of exhaustion.

ST. LOUIS, MO. S. T. NEWMAN, M.D.

HORN-SILVER MINING COMPANY,
OFFICE NO. 44 WALL ST., NEW YORK,
April 15, 1882.

DIVIDEND NO. 5.

THE BOARD OF DIRECTORS HAVE THIS day declared a dividend of $300,000, being THREE PER CENT on the capital stock, payable to the stockholders of record on the 15th of May next, at the office of the company. Transfer-books will be closed on May 6th, and reopened May 16th. W. S. HOYT, Secretary.

PUBLISHED BY NICOLAI, BERLIN.

DIE KALIBRIRUNG DER EISENWALZEN.

Drei, von dem Verein zur Befoerderung des Gewerbefleisses in Preussen gekroente Preisschriften von R. Daelen, A. Hollenberg und Diekmann. Mit 33 Tafeln in quarto und 108 Holzschnitten. $8.80.

For sale by B. WESTERMANN & CO., 838 Broadway, New York.

COPPER PRINCE MINING CO.

ORGANIZED UNDER LAWS OF NEW YORK.

Capital $1,000,000 - Par Value $2.50.

A LIMITED AMOUNT OF TREASURY STOCK FOR SALE.

Hon. A. H. CRAGIN, President.

C. J. BUSHNELL, Secretary and Treasurer.

OFFICE: 35 BROADWAY, ROOM 69.

ADVERTISING RATES

FOR

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(NONPAREIL MEASUREMENT)

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	Lines.	Inches.	One issue.	1 Month (4 issues).	3 Months (13 issues).	6 Months (26 issues).	9 Months (39 issues).	12 Months (52 issues).
	6	½	$1.50	$4.23	$11.64	$20.60	$28.89	$34.35
	9	....	2.25	5.84	15.84	27.65	37.71	47.17
	12	1	3.00	7.46	20.04	34.70	47.03	60.00
	15	....	3.66	9.28	24.49	42.42	57.49	73 35
	18	1½	4.33	10.78	28.95	50.14	67 96	86.70
	21	....	5.00	12.44	33.41	57.86	78.42	100.05
	24	2	5.67	14.10	37.87	65.59	88.89	113.40
	27	....	6.26	15.58	41 85	72.48	98.23	125.32
	30	2½	6.86	17.07	45.83	79.38	107.58	137.25
¼ Column	33	....	7.45	18.55	49.81	86.28	116.93	149.17
	36	3	8.05	20.04	53.80	93.18	126.28	161.10
	39	....	8.58	21.37	57.38	99.38	134.68	171.82
	42	3½	9.12	22.70	60.97	105.58	143.09	182.55
	45	....	9.66	24.03	64.55	111.78	151.49	193.27
	48	4	10.20	25.37	68.14	117.98	159.90	204.00
	54	4½	11.17	27.79	74.64	129.27	175.19	223.50
	60	5	12.15	30.22	81.15	140.55	190.48	243.00
⅛ Column..	66	5½	13.05	32.46	87.16	150.96	204.58	261.00
	72	6	13.95	31.70	93.18	161.37	218.69	279.00
	78	6½	14.84	36.81	98.84	171.17	231.97	295.95
	84	7	15.74	38.92	104.50	180.97	245.26	312.90
	90	7½	16.51	40.95	109.96	190.42	258.03	329.25
	96	8	17.28	42.99	115.42	199.87	270.81	345.61
¼ Page.	102	8½	18.09	45.01	120.85	209.28	283.55	361.75
	108	9	18.90	47.03	126 28	218.69	296.29	377.90
	114	9½	19.72	49.07	131.77	228.19	309.19	394.45
	120	10	20.55	51.12	137.26	237.70	322.15	411.00
1 Column	126	10½	21.41	53.26	143.02	247.66	335.67	428.25
or ⅓ Page...	132	11	22.27	55.41	148.78	257.67	349.19	445.51
½ Page.....	....	....	35.76	88.95	238.87	413.70	560.65	715.27
Full Page....	....	....	61.05	147.47	407.52	705.76	956.41	1220.27

Double these rates for outside front, add 80 per cent for outside back page, and 50 per cent for page next reading matter.

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